



# AUC-EC

# BOOK OF PROJECTS

Africa ■ EU Strategic Partnership Agreement  
8th Priority Action



"Science, Information Society and Space"



# **AUC – EC**

## **Book of Projects**

**Africa-EU Strategic Partnership Agreement**  
**8<sup>th</sup> Priority Action on**  
**"Science, Information Society and Space"**

**Addis Ababa, September 2008**

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*Specific mention should be given to Commissioner for HRST Prof. Jean Pierre EZIN, the Director for HRST Dr. Abdul-Hakim Elwaer and Head of Science, Technology and ICT Dr. Ahmed Hamdy.*

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*Finally, HRST Team would like also to express appreciation to those individuals and organizations that were directly or indirectly contributed in a way or another to bring this book out to the world and for the continuous support we received from each and every one. Without their continuing cooperation and endeavours, this document would not have been possible.*

## Preface

In Lisbon on December 2007, the Heads of Governments of the Africa Union and the European Union Member States signed the Africa-EU Strategic Partnership Agreement and its related Action Plan. The 8th Priority Action asked for a specific identification of proper initiatives to be ruled under the Agreement. This paper presents the Summaries of 19 projects identified within this context; respectively 12 projects on "Science", 5 projects on "Information Society" and 2 projects on "Space".

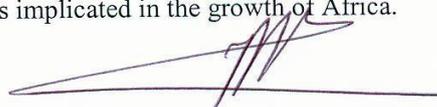
The aim of this document is to report briefly the aim, the background, the objectives, the activities and the expected results of each project. It also includes information on the estimated cost of each project that could be requested as EC contribution. It has not the ambition to be exhaustive. For further information about project details, it is necessary to refer to the whole text presented in the "Book of Projects".

This set of 19 projects is also opened to other partners interested to work on with the African Union Commission. The 19 projects stress the importance of designing capacity building. In particular they seek: strengthening the capacity building of the African researchers to set up result-oriented projects of human development of the continent, to enhance their capacity to provide visibility to the existing African research as well as to train AUC/HRST Department scientific officers to launch and manage the process of call for research projects. They also intend to enhance the African institutions and structures dealing with science, technology, research and innovation to boost their capacity to imagine thematic priorities for the continent take-off.

This document has to be considered as a tool for better dialoguing among the different concerned stakeholders. Consequently, the projects here presented are subjects of deeper analysis by any reader. Remarks, criticisms and suggestions, are more than welcomed and have to be channelled the AUC-Human Resource Science and Technology Department. The HRST Team will appreciate any contribution to help achieving the finalisation of project formulation and the design of partnership around this package of 19 projects.

All requested and received contributions should be finalised in time for its presentation at the African Ministers in charge of Science in November 2008. This date has to be considered as a formal deadline for the final version of the document and the identification of the partners.

I personally consider this "Book of Projects" a way to enlarge the capacity of interacting among the actors related to science and development. Despite that, these projects relate to the first concept, they were considered in the framework of helping the sustainable human development of the continent. I recommend the reading to the academicians, researchers, scientists and overall to decision makers implicated in the growth of Africa.



**Pr. Jean-Pierre O. EZIN**  
**Commissioner for Human Resources,  
Science and Technology  
African Union**

# Introduction

The present document illustrates a common work of elaboration among the Human Resource Science and Technology Department of the African Union Commission and the concerned European Commission Services of Directorate Generals: Research (RTD); Information Society (INFSO) and the Joint Research Centre (JRC).

Exchange of mails, videoconferences, frequent telephone calls were the used tools, but this Book was possible only thanks to the common will and the personal engagement of the all concerned staff. This is underlined here to compliment the involved persons and overall to stress that this experience has to be considered a positive example of real partnerships.

The document is structured according to the 8th Priority of Plan of Action and Joint Strategy, endorsed at the AU-EU Summit of the 9th December 2007. It illustrates projects and programmes according to the three Priority Actions:

- 1) Support the development of an inclusive information society in Africa (with five projects);
- 2) Support S&T capacity building in Africa and implement Africa's Science and Technology Consolidated Plan of Action – CPA (with 12 projects);
- 3) Enhance cooperation on Space applications and technology (with two projects).

The projects provide a comprehensive effort for enhancing the capacities and potentialities of the African scientific and decision-making world. The assumption at the basis of this effort is that most advanced intellectual part of the African society (researchers, academicians, scientists) has the responsibility to deal with the African sustainable development options and issues. This ambition has to be accompanied by a common joint effort of the different concerned actors in Europe. A common framework with shared objectives, translated in specific projects, should become the common way to encounter and work between these partners.

All the projects illustrated in the present document have to be considered as the tools to implement this vision. They ask to receive open and frank comments, criticisms, and suggestions to be exchanged among the involved partners. Only if there will be a common understanding and sharing of the presented project aims, their implementation will allow to initiate the long road described in the AU-EU Partnership Agreement of December 2007.

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# Part 1

**"Support the development of an inclusive  
information society in Africa"**

**(ICT)**

# Part 1

## ICT

### Rationale

The first priority action of Africa-EU partnership on Science, Information Society and Space aims at supporting the development of an inclusive information society in Africa and is a component of the AU-EU Action Plan and Joint Strategy (2008-2010) that was adopted by the Lisbon Summit in Portugal on 9<sup>th</sup> December 2007.

The objective of the first priority action is to bridge the digital divide and to enhance the use of information and communication technologies (ICTs) as key enablers for poverty reduction, growth and socio-economic development. Key outcomes expected from the priority action include;

- A more accessible and affordable African ICT infrastructure
- Enhanced use of ICT application in order to achieve MDGs objectives, notably in the education sector
- Progress towards an inclusive and equitable knowledge-based societies

In order to achieve these outcomes, intensive consultations have been undertaken between the Human Resources, Science and Technology (HRST) Department of the African Union Commission (AUC) and the DG Information Society and Media of the European Commission on one hand and between AUC and proponents of projects on the other to identify projects to be implemented under the Information Society priority of the Africa-EU partnership on Science, Information Society and Space.

The underlying rationale of the selected projects is their consistency with the African Regional Action Plan on Knowledge Economy (ARAPKE) and the African Union Consolidated Plan of Action (CPA) for Science and Technology in Africa as endorsed by Executive Council Decisions [EX.CL/Dec. 258(VIII)] and [EX.CL/Dec.254 (VIII)] respectively.

In addition, the projects were found to contribute to the realization of the aforementioned objectives and anticipated outcomes of the first priority action of Africa-EU partnership on Science, Information Society and Space, which is a component of the AU-EU Action Plan and the Joint Strategy (2008-2010).

## **ICT PROJECTS**

**Africa Connect**

**The African Internet Exchange System**

**The African Leadership ICT Program**

**African Virtual Campus**

**Harnessing Information & Knowledge for Youth Development**



# **AFRICA CONNECT**

# Africa Connect

## Background

1. The concept of the research and education networks has been running successfully in Europe by the GÉANT2 network. This concept has also been successfully introduced in different parts of the world, to support the specific region development needs by building up regional networks and connecting them to the European GÉANT2. Examples are the EUMEDCONNECT network in North Africa and Middle East, the **ALICE network in Latin America and the TEIN regional network initiative in Asia**.

In the Sub-Saharan African countries the internet connection is often considered as luxury. Due to strongly monopolized telecommunication markets and insufficient infrastructure the connectivity prices excessive and the internet capacity provided is insufficient. As a result of this a major part of the population is being excluded from the progress potential that the access to internet provides. The most affected sectors are the education and research where the access to up-to-date information is a precondition for their quality. As these sectors are fully dependent on public funding, the budgets allocated for their functioning are incomparable with the resources required for procuring the internet connection services on commercial markets.

The lagging behind of education and research, as well as lack of access to modern information technologies is directly affecting other sectors like healthcare. The level of medical services is strongly influenced by the knowledge of new healing methods and results of latest medical and pharmaceutical research. No access to modern technologies is often a cause of a brain drain of highly skilled experts into countries with better facilities and possibilities for their development.

1. The main actors involved in this action are the research and education communities in the Sub-Saharan countries. These communities include organisations like universities, research centres and academic institutions with their students and academic staff. As the education sector is a part of public service, they are strongly dependent on the governmental stakeholders and policies.

2. The target group of the Africa-Connect project would be the emerging National Research and Education Networks (NRENs) in Sub-Saharan countries. The NRENs in general terms are organisations associating institutions from the research and education sector (universities, academic institutions, research centres) in a country, to commonly ensure digital connection for their students and researchers in sufficient capacity and on affordable terms. Universities and research centres being financed from public budgets often lack resources for arranging sufficient internet connectivity and capacity.

3. Research projects often require much higher capacity and quality of internet connection than is normally provided on commercial markets. Grouping together into NREN type of organizations increases their negotiating power vis-à-vis the private internet providers, as well as the governmental ministries. This enables them to obtain the needed resources and obtain connectivity on more advantageous terms.

4. Besides that in the rest of the world the NRENs with its research potential are often the driving power of the development and testing of new information technologies. This status provides them a more advantageous treatment by the private telecom companies, using their networks for testing new technologies before their introduction to commercial markets.

5. The creation of embryonic NRENs in Africa started with internet connectivity provided through the satellite connections. Currently their functioning, structure and sustainability vary from country to country often lacking stable source of funding and long term prospects. Their future functioning and continuation of their activities is often strongly dependent on the donor funding.

The development of a AfricaConnect network in the Sub-Saharan region is based on the priorities of the EU-Africa Partnership on Science, Information Society and Space adopted in Lisbon in December 2007 as part of the Joint EU-Africa Strategy and Action Plan. The Information Society priority of the

Partnership includes indeed support to the deployment of regional research and education networks in Africa and their interconnection with GEANT2.

Beginning of 2008, the EC commissioned a Feasibility Study on the Interconnection of South and Eastern African Research Networks to GEANT. As part of this study, the government offices in Sub-Saharan countries are consulted and their policies towards information and communication technologies (ICT) analysed. The results of the study will show that a regional information network would be highly consistent with African Government policies and strategies.

In parallel, the strategy states that similar efforts will be made to address the scientific divide and increase Africa's research capacities. Inadequate technical capacity of Africa will be upgraded through the establishment of specialised networks in regions and sub-regions, which need to focus on identified priorities so as to underpin economic growth and sustainable development of the African continent. In this respect, Africa and the EU will promote the strengthening of collaborative links between African regional and sub-regional partnerships and European partners, in order to contribute to the sustainability of established centres and networks of excellence. The AfricaConnect initiative is a direct answer to these priorities.

The EU-Africa Partnership on Science, Information Society and Space makes clear reference to supporting ARAPKE, the African Regional Action Plan for the Knowledge Economy adopted by the African Union in the context of the World Summit on the Information Society. ARAPKE identifies both capacities in terms of infrastructures and research and development as priorities. The new high speed link with the global research and education network via GÉANT2 would provide the bandwidth that National Research and Education Networks in Africa need.

This consistency can for example be seen in national policy towards the ICT sector in most of the African countries, where each of the countries have launched key policy and legislative initiatives during the last 5 years and flagship ICT policy initiatives are often mandated directly from the Presidents of these republics. A review of donor assistance towards these countries shows evidence of national willingness to develop national regulatory frameworks for the ICT sector that provide business certainty and are consistent with international standards (e-commerce regulatory framework, intellectual property rights, electronic signatures etc.).

Further consistency with an Africa-Connect initiative can be seen in national government efforts to improve the scale of *internet access*. While many of the African countries are starting from low internet access levels, significant efforts are nonetheless being made to increase the reach of the internet in these countries, although lack of sufficient funding is proving to be an important constraint in some cases.

2. The funding envisaged for the Africa-Connect project would come from EC resources (12 million EUR) as well as from the co-financing from the side of Sub-Saharan countries (3 million EUR). The national African country co-financing would be paid by the National Research and Education Networks (NRENs). It is likely that it will originate primarily from national government budgets, which usually finance the NRENs, but may also come from other stakeholder groups.

Estimated Duration	3 yrs	Planned Start	As soon as funds are available
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## Objectives

Overall Goal:

The main goal of the Africa Connect project is to contribute to the modernization and development of the education and research in Sub-Saharan countries. This goal will be achieved by supporting the research networking and internet connectivity.

Objectives in detail:

No.	Description of objective
1	<ul style="list-style-type: none"> <li>Lowering the digital divide</li> </ul>
2	<ul style="list-style-type: none"> <li>Contribute to the development of Africa by enabling African researchers to have the facilities to work with their international peers and also widen Africa's research base</li> </ul>
3	<ul style="list-style-type: none"> <li>Modernization of the education and research sector</li> </ul>
4	<ul style="list-style-type: none"> <li>Inclusion of the Sub-Saharan countries in the global research cooperation and global research projects</li> </ul>
5	<ul style="list-style-type: none"> <li>Increase of use of the ICT technologies by other sectors</li> </ul>
6	<ul style="list-style-type: none"> <li>Increase access to the internet for general population</li> </ul>
7	<ul style="list-style-type: none"> <li>Increased regional cooperation among the Sub-Saharan countries, particularly in the research sector</li> </ul>
8	<ul style="list-style-type: none"> <li>Increased exchanges of the Sub-Saharan region with the rest of the world; increased openness of the region</li> </ul>

### Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost (\$)
1	Connectivity linking the NRENs through one or several regional backbone networks	Design of the most cost-effective technical solution for the network  Procurement of the network from telecom providers  Network management to provide stable services	1	17,050,000
2	Support to advanced user communities utilizing the AfricaConnect infrastructure	Promotion of the use of the network to the end-users (students, researchers, doctors)	1	3,100,000
3	Training and support activities	Capacity building for the consolidation of the NRENs  Training of local staff		3,100,000
			<b>Grand Total</b>	<b>23,250,000</b>

## Expected Results

- Provision of ICT connectivity to the education and research organisations in the quality and capacity meeting the needs of the end users (students, researchers).
- Consolidation of the emerging National Research and Education Networks (NRENs) into organisations with sufficient organisational and financial capacity to provide internet connectivity to the research and education community in their country.
- Development of regional network(s) between the NRENs of the Sub-Saharan countries providing international internet connectivity with sufficient capacity and on a stable basis
- Connection of the regional sub-Saharan network(s) to the European GEANT2 network
- Development and promotion of the use of ICT application in education, research, medicine as well as other sectors (e-learning, distance learning, tele-conferencing, tele-medicine)

## Performance Indicators

Indicator 1:

- a) Number of NREN Countries connected
- b) Number of Institutions connected
- c) Number of Users connected
- d) Number of direct users

Indicator 2:

Percentage increase of network capacity and traffic between the participating AfricaConnect NREN's.

Indicator 3:

Direct access between NRENS of both regions through fast and safe connection

Indicator 4:

Establishment of the AfricaConnect network

Indicator 5:

Ownership rate i.e. share of funding by beneficiaries

Indicator 6:

Project Impact, User involvement and application development

## Risk Factors and Mitigation Measures

### 1. Difficulty in finding a cost-effective solution

Monopolized markets of telecommunication services providers lead to excessive costs or difficulties in finding cost-effective solution for the design of the network.

**RISK: Medium**

Proposed Actions to address the risk factor:

3. High-level political involvement could ease up the dialogue with national monopolies.

4. 2. Being viewed by well established monopolies as competitors

5. The telecom monopolies may lobby to governments to create obstacles to the project. This is especially due to the consideration of the AfricaConnect network as being the competition to the well established monopolies.

**RISK: Medium**

Proposed Actions to address the risk factor:

High-level political involvement could ease up the dialogue with national monopolies.

### 3. Cooperation difficulties on a regional level:

6. AfricaConnect should be positioned as a regional project where the collaboration of clusters of Sub-Saharan governments and actors is required for success.

**RISK: Medium**

Proposed Actions to address the risk factor:

Initial two-country international connectivity solution could be pursued in order to start the process and to attract further countries.

### 4. Insufficient financial viability of the NRENs

7. Some NRENs are not able to provide the 20% co-financing.

**RISK: Medium**

Proposed Actions to address the risk factor:

8. The political dialogue should promote the support of government ministries to the NRENs. The involvement of national governments will be a crucial factor for the success of the projects.

9. In the case of poorer countries a possibility for full funding in the initial period of the network could be considered. The other option would be to start the network with only selected countries in the beginning and extend the network at a later stage.

### **Implementation Arrangement**

6. For a successful implementation of the project it is important to consult local stakeholders both on the technical level of NRENs as well as on the political level. This will be initialised by the study launched by DG INFSO.

7. Based on previous experience the grant could be directly awarded to European NREN founded entity DANTE, based on their unique situation in the area of delivering services to the research and education communities. DANTE is a non-profit organisation with all stakeholders coming from the European national NRENs. Using this body for the project implementation would enable the policy transfer on building the research and education networks with experiences from Europe.

8. The management of the project could be lead by a Project Technical Committee, where the representatives of the national stakeholders should be involved in the definition of the priorities. The direct implementation structure is to be defined at a later stage.

9. Taking into account the experiences from the EUMEDCONNECT project, as well as the particularities of the Sub-Saharan region, it is recommended to implement the project in 2 phases:

- Preparatory phase would build on the recommendations of the feasibility study and will design the most optimal network topology. The pricing and implementation possibilities will be tested as well as the capacity and preparedness of the national NRENs to implement the network. If needed training and capacity building will be provided to the NRENs. Based on successful completion of the first phase, the second phase will be started with the Sub-Saharan countries qualified.
- Implementation phase will proceed to the procurement of the network, network management, practical operation and promotion of the use of ICT applications.

Based on the African-EU partnership on information society which is a component of the AU-EU Action Plan and Joint Strategy (2008-2010), The Human Resources and Science Technology Department of the African Union Commission (AUC) will perform the role of project leadership and coordination.



# **THE AFRICAN INTERNET EXCHANGE SYSTEM**

# The African Internet Exchange System

## Background

The Internet in Africa has been growing steadily over the past several years and is beginning to play a significant role in Africa's development, creating employment, providing opportunities for innovation and entrepreneurship, as well as acting as an enabler in the digital delivery of government services, education, radio, healthcare among others.

Unfortunately, the overall impact of the Internet as an enabler in Africa has been severely curtailed by a number of issues. Topping the list of these issues is the lack of efficient paths to carry growing local and regional traffic between Internet Service Providers (ISPs). This problem occurs both on a national as well as on a regional or inter-country scale. Independent analysis has shown that Africa pays over US\$400 Million to developed countries every year for inter-African telecommunications traffic exchange that is carried outside the continent.

Setting up an Internet Exchange Point (IXP) is neither expensive nor difficult. Latency will drop immediately from 900 milliseconds to 60 milliseconds. Costs for connectivity will plummet. Local hosting businesses will bring more revenue opportunities to ISPs, and enable more local content to be created and hosted locally at lower costs. Eventually the cost of Internet would be in the reach of the average person and then to the low-end markets.

Internet Exchange Points (IXPs) have been slow to appear in Africa, for two key reasons: (1) lack of trust among Internet Service Providers (ISP) owners, who are typically ferocious competitors with each other, and (2) resistance from the government, which is often fed by determined opposition from the state-owned monopoly telecom operator. Telecom monopolies fear IXPs because they make Internet vastly faster and less expensive, which, they fear, will further reduce international long-distance calling and, consequently, their already shrinking revenues from the international settlement regime. Achieving cooperation among competing ISP owners is often the most difficult challenge of all, since they have to be convinced that the economic case is unassailable, that the IXP will not simply become a mechanism for poaching customers, and that it is possible to apportion the set-up and ongoing costs of the IXP fairly, so that no ISP is subsidizing its competitors.

At the national level, Internet traffic between ISPs has been optimized in a number of countries with the introduction of Internet Exchange Points (IXPs), which allow ISPs to interconnect and offload correspondent traffic. Countries with exchange points clearing traffic at a national level include South Africa, Kenya, Mozambique, Egypt, Uganda, Tanzania, Nigeria, Democratic Republic of Congo, Benin, Botswana, Ghana, Malawi, Mali, Mauritius among others.

Increasing efficiency of regional traffic is an area that has thus far not been addressed, resulting in a slow and expensive exchange of African inter-country traffic via overseas hubs located mainly in the USA and Europe. This means that Africa is paying overseas carriers to exchange "local" (continental) traffic on our behalf. This is both a costly as well as an inefficient way of handling inter-country exchange of Internet traffic. It is therefore in the interests of all countries in Africa to find ways of optimizing Internet traffic, building better and more robust networks to support intra-continental traffic flows and creating opportunities for private sector investment in these areas.

## Project Description

This project aims to support the work of the African Internet Service Providers Association (AfrISPA) in facilitating the establishment of a truly African internet infrastructure through providing policy & regulatory reform, capacity building, technical assistance for ISP Associations and Internet Exchange Points in Africa.

AfriSPA has already mobilized two teams of African experts called The African Internet Exchange Task Force (AFIX-TF @ <http://afix.afrispa.org>) and the Enabling ISPA's Task Force (<http://enispa.afrispa.org>). These are operational arms that provide planning, implementation and delivery of the various project objectives. Both teams consist of approximately 40 resource people across the continent from all the major language groups. The teams have already been responsible for the establishment of a number of ISPA's and IXPs across the continent with funding from DFID's CATIA Programme which came to an end in August 2006.

This proposal seeks to build upon the progress made so far by mobilizing additional resource teams to targets new areas while extending the work of the teams, maintaining the momentum, and ensuring that relevant policies, actors and infrastructures are in place to enhance Africa's participation in the global information economy.

**Timeframe:**

Estimated Duration	3 yrs	Planned Start	As soon as funds are available
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**Objectives**

Overall Goal:

There are **three** goals associated with this project

- A robust and fully redundant African Internet backbone infrastructure with exchange points at the core
- A body of research data that can facilitate deeper study into trends of African data; mapping of impact of ongoing infrastructure development and growth in "local" traffic
- A fully accredited and operationally relevant academic programme to support development of Internet technical capacity in Africa

Objectives in detail:

No.	Description of objective
1.	<b>To establish Internet exchange points in 44 African Countries:</b> Through the mobilization of an AFIX Task Force Set up AFIX Support Helpdesk Have the AFIX members conduct IXP workshops
2.	<b>To establish 5 Regional Internet Hubs</b> By identifying suitable/appropriate neighboring countries to participate in regional hub By identifying the ideal location for main inter-country hub location By provide/procure equipment necessary for core internet hub functions such as. high-speed data switch
3.	<b>To establish 4 Regional Internet Carriers</b> Through the preparation of Terms of Reference for Regional Internet Carrier RFP Through the launch of RIC RFP Through the final identification / award of the successful candidate(s)
4.	<b>To establish 3 Continental Internet Carriers</b> Through the preparation of Terms of Reference for Continental Internet Carrier RFP Through the launch of CIC RFP Through the final identification / award of the successful candidate(s)
5.	<b>To establish a real-time and historical traffic data accessible via web-based visualization system</b> By Determining specifications for expanded, continent-wide UNGANA internet traffic data monitoring system – <a href="http://ungana.afrispa.org">http://ungana.afrispa.org</a> By procuring equipment/services to facilitate rollout By the implementation and ongoing data analysis
6.	<b>To develop a certificate curriculum on Internet Exchange technologies</b> Through the Identification of suitable academic partners Through the development of a curriculum in English, French & Portuguese Through the adoption & accreditation at suitable academic institutions

### Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Deliverables	Priority	Estimated Cost in US\$
1	Mobilizing the African Internet Exchange Task Force	An African Internet Exchange Taskforce will be mobilized and contracted to mainly; <ul style="list-style-type: none"> <li>Revise Workshop Curriculum and put it in complete Multimedia Toolkit Format</li> <li>Conduct trainings at the planned 30 IXP workshops</li> </ul> This activity will also include setting up a support helpdesk at each of the 30 IXP workshops, overall management by AFRISPA to conduct the 30 IXP workshops and shipping cost of the IXP training Kit	<ul style="list-style-type: none"> <li>Complete workshop curriculum in multimedia toolkit format</li> <li>A support helpdesk at each of the 30 IXP workshops</li> <li>Well conducted trainings at the 30 IXP Workshops</li> </ul>	1	152,560

2	Conducting 30 IXP Workshops	This activity will include hiring of suitable venue, airfare travels, per diem, etc to successfully conduct 30 IXP workshops	<ul style="list-style-type: none"> <li>• 30 IXP Workshops</li> </ul>	1	384,000
3	Mobilizing the ISPA Team	<p>The Internet Service Provider Association (ISPA) team will be mobilized and contracted to mainly;</p> <ul style="list-style-type: none"> <li>• Revise Workshop Curriculum and put it in complete Multimedia Toolkit Format</li> <li>• Conduct trainings at the planned 30 ISPA workshops</li> </ul> <p>This activity will also include setting up a support helpdesk at each of the 30 ISPA workshops, overall management by AFRISPA to conduct the 30 ISPA workshops</p>	<ul style="list-style-type: none"> <li>• Complete workshop curriculum in multimedia toolkit format</li> <li>• A support helpdesk at each of the 30 IXP workshops</li> <li>• Well conducted trainings at the 30 IXP Workshops</li> </ul>	1	168,560
4	Conducting 30 ISPA Workshops	This activity will include hiring of suitable venue, airfare travels, per diem, etc to successfully conduct 30 ISPA workshops	30 IXP Workshops	1	384,000
5	Establishment and Support of African Internet Exchange Systems Pilot Project ( AXIS-Pilot)	This activity includes seed funding and support for the deployment of high capacity pipes linking key IXPs with the central hub in each of the five African Regions( North, West, Central, East and Southern) for 6 months to one year	5 Regional Internet Hubs	1	2,500,000
6	Research, Analysis and Reporting on traffic patterns, trends and scope	This activity includes refinement of software tools for collection, storage & analysis of traffic data via deployment of "sensor nodes" at key network points	A real-time and historical traffic data accessible via web-based visualization system	2	350,000
7	Development of Academic programme with African universities on Internet Exchange with research and development component	This activity includes engagement and interaction with key universities/colleges to design, structure and implement certification programme	A certificate curriculum on Internet Exchange technologies	3	125,000
			<b>TOTAL</b>		<b>4,064,120</b>

## Expected results

- 30 IXP Workshops
- 30 ISPA Workshops
- Policy & Regulatory Internet Exchange Point Toolkits
- 44 African countries with Internet Exchange Points
- 5 Regional Internet Hubs
- 4 Regional Internet Carriers
- 3 Continental Internet Carriers
- Fully redundant African Internet Backbone
- Real-time and historical traffic data accessible via web-based visualization system
- Certificate Curriculum on Internet Exchange technologies

## Performance Indicators

Indicator 1:

Reduced cost of Internet access, increased quality of local access, increased number of local online applications

Indicator 2:

Maximum 200-400 millisecond delay/latency on packets between participating networks

Indicator3:

Less than \$500 per Megabit for cross-border regional access

Indicator 4:

Less than \$500 per Megabit for trans-continental access

Indicator5:

Ability to query, search and display traffic data:

- between ISP networks
- between countries
- between regions

Multiples of the above combinations

Indicator 6:

4-5 universities and/or colleges and/or technical schools in different countries actively delivering training based on this curriculum

## Risk Factors and Mitigation Measures

i. Regulatory obstacles due to diverse jurisdictions and legal frameworks

Each African country has it's own communications regulatory framework and legal environment. In most cases there is no mutual recognition of licensees from one country to another. Additionally in some cases there are differences in frequency allocation tables, right of way procedures etc...

Risk : **High**

Proposed action(s) to address the risk factor:

The project administrators will have to engage in close coordination with national and regional regulatory bodies e.g. WATRA, CRASA, ARICEA, EARPTO etc.. in order to ensure regulatory support in all the countries that will be covered by the network. Lobby for mutual recognition of relevant license categories between neighbouring countries

ii. Lack of or insufficient cross border infrastructure between African countries

Currently there is little or no communications infrastructure going across neighbouring African countries. The most recent multi-country network is the PANAFTEL which was commissioned in the 70s and consists largely of low capacity microwave. Other projects to link other countries such as COMTEL and SADCs SRII have either never taken off or are incomplete and stuck.

Risk: **Medium**

Proposed action(s) to address the risk factor:

Close coordination and planning with regional network operators.  
Presentation of business case(s) to support arguments in favour of investment into high capacity cross-border infrastructure.

iii. *Lack of political support*

*There is a risk that political leaders might not fully grasp the relevance or strategic importance of better integration of Internet infrastructure between their countries, thereby giving a lower priority to this against other priority issues.*

Risk: **Medium**

*Proposed action(s) to address the risk factor:*

Alignment with AU/NEPAD and Millennium development goals.  
Regular high level feedback on progress, status, impacts and outcomes.  
Participation and presentation in regional fora to maintain awareness.

iv. Insufficient technical capacity to undertake research of this magnitude

AfrISPA and constituent organisations may lack the detailed research skills and capacity to undertake the many different assignments associated with a project of this scale.

Risk: **Low**

*Proposed action(s) to address the risk factor:*

*Partnership with well recognised and qualified research organisations that have experience with conducting large projects in multiple African countries.*

v. *Lack of tools and resources to collect and analyse data in real time*

Due to the transient nature of internet traffic flows as well as varying traffic patterns depending on geography, demography and economy it is necessary to tap the data as close to the source as possible. This implies the placement of sensors and data collectors at key strategic points within operator

networks. Such tools are available in one form or another but most lack the ability to integrate with a statistical back end and feed data from hundreds of operators simultaneously.

Risk: **Low**

Proposed action(s) to address the risk factor:

Refinement and deployment of AfrISPA's UNGANA toolkit which provides a complete, distributed collection and data storage platform for ISP/IXP traffic analysis.

vi. Denial of access to network and system data by operators and service providers

Network and service providers generally tend to closely guard their network statistics and proprietary data due to competitive concerns and in some case privacy concerns. Additionally the general trend is a culture of competition rather than collaboration between ISPs and network operators.

Risk: **Medium**

Proposed action(s) to address the risk factor:

Ensure top level buy-in from ISPs and network operators by involving their decision-makers at key stages of program development. This can be largely achieved via the AfrISPA member network and related institutions. The promotion of a culture of collaboration which boosts healthy competition.

vii. Lack of suitable academic partner to facilitate curriculum development and certification

AfrISPA has gathered a significant amount of experience and knowledge over the past 4-5 years with its efforts in promoting the establishment of IXPs in many different African countries. AfrISPA has also developed a training programme which has proven to be very effective in getting individual ISPs within a country both to understand and deploy their own national IXPs. However, most of this work has been done largely by African internet engineers and professionals who are not from an academic orientation. There is also a lack of industry-academia partnerships with which to facilitate this process.

Risk : **Medium**

Proposed action(s) to address the risk factor:

Strengthen existing ties with institutions such as Sweden's Royal Institute of Technology (KTH). Engage with existing ICT oriented programmes such as Net@Tel Africa and E-Poll network etc. Establish relationships with progressive African academic institutions.

viii. Failure to gain recognition amongst African Internet engineers and low perception of value within the African technical community

Since the technical personnel who operate African networks as well as students who are interested in pursuing careers in internetworking are the targets for this academic program it is critical that they be aware of the program and believe that it can help them obtain skills that would make them more marketable, proficient and informed.

Risk: **Medium**

Proposed Actions to address the risk factor:

Engage African Internet institutions such as the African Network Operators Group – AFNOG, African Network Information Centre – AfrINIC, African Top Level Domains Organisation – AFTLD and others to ensure visibility, buy-in and support from the technical community.

ix. Lack of relevance due to rapid technological change in Africa's Internet industry

The Internet in Africa is experiencing significant changes due to; rapid growth of mobile telephony, multiple undersea cable projects which are bringing the costs of bandwidth down and increasing the amounts of available capacity, convergence of communications and broadcasting as well as shift from analogue to digital systems.

Risk: **Medium**

Proposed Actions to address the risk factor:

A curriculum development approach that is both dynamic as well as based on standards and principles that allow it to transcend flux within the environment.

**Implementation Arrangements**

The project will be implemented using a model that involves an overall programme manager with Component Leaders responsible for key elements of the project. The Component Leaders would report to the Programme Manager while the Programme Manager reports to the Sponsoring organisation(s). The African Internet Services Provider Association would serve as Programme Manager in this respect and has the capacity to engage and mobilise competent Component Leaders through its extensive network and linkages with key organisations and institutions across the continent. AfrISPA has also successfully demonstrated competence in programme management through the administration of Component 1A of DFID's Catalysing Access to ICTs in Africa project.

**Monitoring and Evaluation**

It will be in line with procedures agreed between the AUC and the partners.



# **THE AFRICAN LEADERSHIP ICT PROGRAM**

# The African Leadership ICT Program

## Background

In line with Egypt's commitment to boost the development of the information and communication technology (ICT) sector in Africa, Egypt is proposing the development of an African Leadership ICT Program (**ALICT**) aiming at enhancing leadership skills in African countries for promising ICT professionals. The idea behind this proposal was first introduced by Egypt during the conference of Ministers responsible for Information and Communications Technologies of the African Union, First Ordinary Session, held in Cairo during the period 18-20 April 2006 and was well received by member states representatives attending the conference.

Respectively, and based on the initial proposal, Egypt's Ministry of Communications and Information Technology (MCIT) has organized a workshop during the period 6-7 June 2006 bringing together experts from a number of African countries and African regional organizations to share in the conceptual development and formulation of the proposed African Leadership ICT Program. The workshop's main objective was to encourage experience sharing and to solicit the inputs of all participating experts and professionals in order to formulate a challenging and robust program that addresses the main priority issues in the ICT sector in Africa with a focus on leadership and regional cooperation and that is at the same time customized to meet the needs and aspirations of the African continent and that builds on the extensive experiences of different talents and specialized local and regional organizations already functioning with a diversified portfolio of projects and activities.

The workshop was attended by participants from Mali, Mozambique, Mauritania, Kenya, Ghana and Egypt as well as representatives from the African Union Commission and the Economic Commission for Africa. Appendix A includes a list of the participants of the workshop. During the period of the two days workshop, the participants engaged in continuous participatory discussions on the framework of the African Leadership ICT Program and the identification of the format, program content, and criteria for the selection of the program trainers, training providers, trainees, and assessment among other elements. It is important to note that the diversity, experiences and background of the participants including experts from academia, the private sector, policy makers, the government and technical experts was invaluable in bringing a comprehensive understanding of how the program should be formulated, developed and implemented. The inputs of the participants greatly enriched the discussions and led to the formulation of an understanding and agreement on how the various elements related to the design and delivery of the program should be synergized to realize a maximum added-value to the participants directly and more specifically and to their community indirectly within a broader perspective.

## Project Description

The structure of the program is set to be 5 weeks consisting of a number of modules that will be delivered in a selective variety of qualified training institutions around Africa's five regions (North Africa, East Africa, Central Africa, West Africa and Southern Africa).

The program main modules will include a variety of issues that are assessed as being crucial for developing a class of ICT leaders that can become agents for change in their own community and be catalysts for regional cooperation in the domain of ICT both at the regional and sub-regional levels. The four main modules include

- a) Information and Communication Technology Strategy Development
- b) Leadership
- c) Cross Cultural Integration and Regional Cooperation
- d) The Impact of Public-Private Partnerships in Business and Socioeconomic Development

The program will start with a one-day (6 hours) overall seminar on the expectations of the program and an overview of the global drivers and issues that affect business and socioeconomic development in Africa. Invited speakers from different regional and international organizations will be invited to address these macro-level and global issues.

The leadership program will include an assessment of the capacities of the participants during the second week that should be re-visited again during the fifth week of the program to provide the participants with a chance to compare and assess their progress with respect to leadership related issues.

The fifth week will comprise a forum on Project Formulation and a Seminar dedicated to “Management of Technology Case Development”. Detailed description of the modules is included in appendix B. One of the highlights of the final week is the case development for future ICT project implementation. The case will be formulated and developed by the participants themselves where they will have the chance to bring in their own experience and knowledge together with the input they got throughout the program and demonstrate how their communities can benefit from ICT through their suggested projects and ideas. Each group will be asked to present their project idea in the form of a business case in a session dedicated for project presentations; each group will be allocated 30 minutes. The final week will conclude with a wrap-up session, assessment of program content, organization and instructors as well as recommendations. A closing ceremony for group pictures and certificates distribution will take place during the final day of the fifth module.

Each week will comprise the following elements (more elements could be added according to the needs):

- Series of lecture sessions addressing conceptual foundations related to the topic covered (10-12 hours)
- Discussion of best practices and real-life cases studies; example from organizations and countries could be used (10-12 hours)
- Field visits; companies, factories, banks, etc (4-6 hours)
- Group presentation at the end of the module by the participants; each group will comprise 5 members addressing one of the issues discussed and demonstrating their views and inputs (each presentation 30 minutes)

**Timeframe:**

Estimated Duration	3 yrs	Planned Start	As soon as funds are available
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**Objectives**

Overall Goal:

To leverage the individual experiences and capacities of young promising mid-career potential leaders in African countries to become change agents in the ICT sector.

Objectives in detail:

No.	Description of objective
1.	Providing First Hand experience of the ICT sector in the five sub regions of Africa
2.	Introducing the participants to Leadership skills and availing opportunities and mechanisms in the Continent for regional cooperation, solidarity and collaboration among African countries through regional cooperation.
3.	Using ICTs to promote economic growth and enterprise development by harnessing the leadership skills of promising ICT leaders and policy makers, to ensure that the benefits of new technologies, especially information and communication technologies are available to all.
4.	Building effective leadership capacities in the ICT sector in Africa based on the knowledge acquired and shared through the ALICT professional development program.
5.	Learning from and sharing knowledge with other experiences in addition to capitalizing on various projects and initiatives which is an invaluable key for the effective success.

6.	Developing a platform for investments and economic growth through human resource investment across different levels in the organization from top to bottom and addressing the different needs in terms of management, leadership, as well as project formulation and management.
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### Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Deliverables	Priority	Estimated Cost in US\$
1	Program Promotion, Training Center Identification and Trainees Selection Cost	Advertisement of the program (2 ads per region in 5 regions) Advertisements in leading global newspapers and magazines for the recruitment of trainers for the program** Advertisement for the recruitment of selected training centers/institutes (1 ad for each of the 5 regions) Advertisement for the recruitment of selected candidates (2 ads per region in 5 regions)	To attract the right calibre of students and instructors for the training program and ensure proper exposure.	2	52,500
2	Cost of Conducting 5-Week Training Program (2 Cohorts English/French)	Travel Expenses (Each cohort 25 candidates) Accommodation and Lodging Per Diem per Participant Visas Travel insurance <b>Training Institution Expenses (3 sessions per day each 2 hours)</b> Opening Reception 2 Coffee Breaks/day Daily Lunch Computing and Internet Facilities <b>Instructor Fees</b> Program Facilitators Travel Expenses for Program Instructors Accommodation and Lodging for Program Instructors Per Diem per Instructor Visas Travel insurance Program Director	Developing a class of ICT leaders that can become agents for change in their own community and be catalysts for regional cooperation in the domain of ICT both at the regional and sub-regional levels.	1	1,472,875

		Program Coordinators (1 in each region) Program Assessors Travel Expenses for Program Assessors Accommodation and Lodging Per Diem Visas Travel insurance Curriculum Development and Cases Formulation Training Material Translation Training Material Reproduction Books and Cases Stationary Bags, Pins, Mugs, etc... Certificates Production			
3	Cost of Centrally Managing the 5-weeks Program	Travel Expenses Accommodation and Lodging Per Diem Visas Travel insurance	Managing and organizing the training program and supervising the modules	1	28,125
4	Technical Advisory Board Meeting	Travel Expenses (one meeting per year) Accommodation and Lodging Per Diem Visas Travel insurance	The Technical Advisory Board will provide advice to the program director as well as program administrators in each of the program locations.	2	31,500
5	ALICT Alumni Association	Alumni Website and Maintenance Alumni Newsletter	Develop a mechanism through which participants of the Program can keep networking and exchanging knowledge and ideas beyond the duration of the program.	3	24,000
		<b>TOTAL</b>			<b>1,609,000</b>
		<b>Total for 2 Years (100%) and 3rd Year (50%)</b>			<b>4,022,500</b>
		<b>Total 3rd year (50%) for Sponsorship and other Contributions</b>			<b>804,500</b>

		<b>Grand Total</b>		<b>4,827,000</b>

**Expected results**

- Well developed curriculum for the ICT Leadership Training Program
- Leverage the individual experiences and capacities of young promising mid-career potential leaders in African countries to become change agents in the ICT sector.
- Disseminate knowledge and skills to identify and formulate different opportunities for African regional cooperation in the ICT sector.
- 50 participants from the five regions of Africa, successfully completing the ICT Leadership Training program

**Performance Indicators**

What are the performance indicators that will help measure the success of the project?

Indicator 1:

Assessment outcome of the capacities of the participants during the second module (Detailed description of the modules is included in appendix B) that should be re-visited again during the fifth week of the program to provide the participants with a chance to compare and assess their progress with respect to leadership related issues

Indicator 2:

Quality of group presentation at the end of the module by the participants; each group will comprise 5 members addressing one of the issues discussed and demonstrating their views and inputs (each presentation 30 minutes)

**Risk Factors and Mitigation Measures**

**i. Long Term Sustainability of the Program**

Risks related to the long term sustainability of the program. This could relate more to a number of elements including but not limited to financial sustainability as well as currency and regular updates of the course curriculum.

**Risk: Medium**

Proposed Action(s) to address the risk factor:

It is suggested that the first round of the program could be implemented based on a full scale sponsorship basis, whereby the project sponsors all the participants, the formulation of the professional development program as well as the development of the program material. During this phase of the project it is suggested to initiate discussions with different academic and executive development institutions to accredit the program as a professional certificate in order to be able to run it as an independent self-sustainable program in the future offerings. This could lead to the formulation

of an invaluable initiative that can create a professional educational consortium among African countries to introduce a highly needed professional development program and also represent a solid platform for collaboration in one of the key building blocks in the ICT sector and that is the formulation of the future leaders of the ICT industry.

In that respect, it is suggested that the second round of the program would be co-funded by the respective countries. A mechanism could be formulated to identify who could be eligible as a sponsor of the program. However, it is suggested that it can include a blend of public and private sector organizations to set yet again a model for public private partnership. Following such model for 1-2 years, it is suggested that following programs would be totally funded by participating countries, whereby each country would sponsor its participants to the professional development program.

The above concept for sustainability requires the initiation of a political process at the beginning of the program whereby the African country would sign a Memorandum of Understanding highlighting their commitment to the program.

## **ii. Selection of qualified participants**

Risks related to the recruitment of qualified participants and ensuring their commitment to the duration of the program. This is key because the participants represent the most important ingredient in the program and they reflect the outcome that based upon which the program will be regularly assessed and evaluated. In that respect, the process of recruitment should be well in place to ensure quality inputs and pave the way for quality outcomes.

Risk: **Low**

Proposed Action(s) to address the risk factor:

Through the process of program promotion, training center identification and the trainee selection as identified in the activities section this risk could be alleviated.

## **iii. Identification of High Quality Training Institutions**

Risks related to the identification of high quality training institutions and that should be well formulated as a process and followed to the simplest details to guarantee the proper environment for professional development.

Risk: **Low**

Proposed Action(s) to address the risk factor:

The Technical Advisory board along with the board that will centrally manage the program would assess the training institutions and guarantee effective selection and the success of the program.

## **iv. Identification of Qualified Lectures**

Risks associated with the identification of the qualified lecturers to guarantee the mix and blend of academic and market as well as industry-related experience needed to address the participants of the program.

Risk: **Low**

Proposed Action(s) to address the risk factor:

The Technical Advisory Board will provide advice to the program director as well as program administrators in each of the program locations. They will ensure the qualifications of the lecturers as well as the content of the program.

## **Implementation Arrangements**

A Technical Advisory Board (TAB) will be formulated from representatives of the five African regions nominated by each country's minister responsible for communications and information technology. The board will include 15 members representing the five regions in Africa in addition to Egypt. It is important to note that the nominated technical advisory board members be independent from the training providers nominated from the different ministers and eligible for selection to design and implement the African Leadership ICT Program. Appendix C demonstrates details for the selection of the technical advisory board.

A defined criterion for the qualification of different training institutions and/or consortiums will be the base for selection to deliver the program. Appendix D outlines the requirements that need to be met for different entities to be able to apply to deliver the program. All potential entities will be required to complete a questionnaire together with the submission of an interest and commitment letter for the implementation of the 5-week program<sup>1</sup>. During the final assessment phase, representatives of the technical advisory board will be conducting an on-site visit to assess the training providers and make the final selection.

A defined criterion for the instructors and trainers that are eligible for the delivery of the program is developed and detailed as shown in appendix E. It is advisable that the resource persons used be pooled from Africa as a first choice but should not be limited to it if world-class resource persons could be drawn from other regions or countries to contribute and provide added-value to the program. In addition to the instructors and trainers that will be delivering the content of the training program, facilitators could be perceived as vital resources to facilitate some of the discussions throughout the different phases of the program as well as during the development of case studies and project work.

It is recommended that the selection criteria for the participants of the program be based on a multi-tier phase demonstrated as follows:

- Ministers responsible for ICT or any other designated local authority will announce a national competition for the qualification to attend the program. Ads in newspapers, listing in electronic groups or any other media could be used to pool the best local resources.
- Candidates will be required to complete a questionnaire in addition to submitting a resume and two letters of recommendation from previous employers and acquaintances<sup>2</sup> within 2-4 weeks period. Moreover, candidates will be required to have 1500 words write-up reflecting project ideas formulated as a business case for possible future realization in their respective country/region including financial perspective, stakeholders and the role of each player, societal and economical implications of the project/idea.
- A local committee will be assigned to screen the questionnaires and short list 10 candidates from each country to be interviewed.
- All short-listed candidates should go through an interview process that would result in the nomination of 5 selected candidates per country.
- Details of the selected candidates should be forwarded through the minister responsible for communications and information technology in each country to the program director in Egypt who would coordinate with the program technical advisory board to make the final selection of 1-2 candidates per country – pending the program size, funding and the balanced representation of all groups as mentioned earlier.

## **Monitoring and Evaluation**

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<sup>1</sup> The questionnaire will be developed in English and French.

<sup>2</sup> Relatives should not be eligible to furnish recommendation letters to the potential candidates for the program.

It will be in line with procedures agreed between the AU and the partners.

## **Appendices**

### ***Appendix A – Workshop Participants***

The participants of the workshop on the Design of the African Leadership ICT Program included a group of diversified professionals in the areas of information and communication technology, human resource development, networking, academia, and policy making among others and that included:

- Dr Ahmed Abdel Bassit, Ministry of Communications and Information Technology, Egypt
- Mr Essam Abulkhirat, ICT Senior Policy Officer, Human Resources, Science & Technology Department, African Union Commission
- Mr Yahaya Coulibaly, Ministry of Communications and Technology, Republic of Mali
- Mrs Nihad El Ghamry, Ministry of Communications and Information Technology, Egypt
- Mr Mohamed El Koury, Islamic Republic of Mauritania
- Mrs Ghada Howaidy, Ministry of Communications and Information Technology, Egypt
- Mrs Dorothy K. Gordon, Advanced Information Technology Institute (AITI), Republic of Ghana
- Mrs Salome Maloki, Director of Communications Commission of Kenya, Kenya
- Mrs Samia Moussa, Ministry of Communications and Information Technology, Egypt
- Mrs Eskedar Nega, UN Economic Commission for Africa
- Mr Stelios Papadakis, Ministry of Transport and Communications, Republic of Mozambique
- Ms May Ragab, Ministry of Communications and Information Technology, Egypt
- Dr Sherif Kamel, Workshop Facilitator

### ***Appendix B – Details of Program Modules***

Following is a detailed description of the African Leadership ICT Program according to its five modules

#### **Week 1**

##### **One day seminar on Global ICT Trends and Issues and Africa (6 hours)**

- Interoperability
- Convergence
- Glocalization
- Open Source
- Negotiation between the private and public sector
- Management style diversity

##### **Information and Communication Technology Strategy for Development**

Information and communications technologies (ICT) have now become an integral part and key enabler of today's development agenda. However, most developing countries do not have the human resources required to fully explore the technologies required for future advancement and development. The need for qualified human resources is highly required. This module creates the basis for ICT strategy in different countries to create a solid foundation for consistent progress and to enable information and communication technology to play a positive and tangible role in socioeconomic development. This module will be the cornerstone of the 5-weeks program.

#### **Topics**

- Strategy overview
- Strategy evaluation mechanisms
- Adapting ICT strategies to local contexts
- Strategy development workflow/process
- Managing strategy development
- Strategies for ICT addressing key issues including but not limited to poverty reduction, environment, education and health
- Assessing and building strategies for national ICT capacity development
- Overview and use of assessment tools for strategy and/or policy development

- Monitoring the impact of ICT strategy implementation
- Hands-on-Training: Project Management Software (such as Microsoft Project or Primavera)

## **Week 2**

### **One day seminar on Leadership (6 hours)**

- Concept of change and leadership
- Assessment of leadership style

### **Leadership**

No leader becomes successful by working independently. Leaders rely on teams to help them achieve their objectives; develop new products, services, and directions; and find solutions to problems. Team members often work under significant time constraints and are challenged to minimize costs while maintaining quality. It is critical for leaders to be well-versed in strategies and implementation tactics for creating and maintaining high-impact teams. The program will challenge problems and provide top-quality, individual feedback on performance. Highly experiential and interactive, the program focuses on intra-team behavior (leadership, selection, communication, conflict) and inter-team dynamics (competition), as well as on compensation and networking. This second module aims at creating a generation of future leaders who have thorough understanding of the meaning of teams and the role innovative and emerging information and communication technologies can play in creating a strong team capable of realizing organizational objectives and meeting expectations.

### **Topics**

- What is leadership? Who is a leader?
- Management versus leadership
- Leaders: made or born?
- Power of leaders - Getting the best out of people
- Managing social capital
- Motivation, commitment and team coaching
- Leadership and cultural diversity
- Credibility and capability of leaders
- Leading for change
- Leading in the global environment
- Quality leadership (influence, persuasion, etc.)
- Clash of traditional ethics among African participants with the demands of modern civilization and work cultures (example on the difficulty to reprimand poor performance in the workplace in some cultures)
- Delegation and empowerment and how they tie into the qualities of a leader
- Reflecting on the biographies/attributes of influential leaders

## **Week 3**

### **Cross Cultural Integration and Regional Cooperation**

Multi-cultural environments have the potential to create profitable synergies. However, this is only possible when the friction is reduced between people from various national and international cultures who are put together to work and produce. Ignoring cultural differences creates frictions and barriers. The need for reconciling cultural differences is reinforced when operating across borders. This module will align the already exposed participants to cross cultural issues with the possibilities and mechanisms for regional cooperation through mutually beneficial projects and activities with business and socioeconomic benefits. This will capitalize on the previous strategy and leadership modules with a spirit of glocalization blending regional exposure and cooperation with local cultures, norms and beliefs. The module will emphasize on the possibilities and opportunities enabled through the development of regional projects in different parts of the continent including the provision of a vehicle for knowledge dissemination and expertise collaboration through the different institutions available in Africa such as the African Development Bank, African Union, NEPAD and COMESA among others.

### **Topics**

- Cross cultural barriers to regional integration in creating business partnerships
- Using new technologies for communication and cross cultural collaboration
- Participation in joint task groups for cultural integration

- Knowledge of regional economic bodies, regional projects and strategies
- Projects coordination and policies harmonization
- Resource mobilization and managing financial resources
- Governance and integration: institutional challenges
- Collaboration on ad-hoc basis
- Structural, operational and cultural integration
- Integration across borders
- Understanding interdependencies

#### **Week 4**

##### **The Impact of Public-Private Partnerships in Business and Socioeconomic Development**

Through community development, countries can improve their development and growth prospects and strengthen their ability to address many complex goals such as identifying business opportunities, poverty reduction, promoting peace and security and achieving sustainable socioeconomic development and growth. Community development plans will allow member countries to review and analyze the integrated policies that coincide with ongoing global development. This will also involve governance, gender, poverty and unemployment and population dynamics to community and human resource development. This module will help participants integrate their experience as well as their recently acquired skills to create a complete process to aid in the developmental process of their countries. Experiences of many countries in promoting public-private sector partnerships have yielded many success stories in the past and have also accumulated a body of knowledge and lessons learnt that represents guidelines for future implementations, this module stresses the importance and viability of PPP in business and socioeconomic development at both local and regional levels.

#### **Topics**

- Case studies on successful PPP
- Approaches to development (public/private sector cooperation)
- Roles played by different stakeholders in the PPP formula
- Potential impact on ICT development on Africa through the efforts/lobbying on the part of civil society organizations in issues related to the WTO (particularly on issues such as opening national procurement to international tenders, etc.)
- Corporate social responsibility and existing frameworks like the Global Compact
- Regulatory aspects and how they affect PPP (regulating partnership)
- Motivation for private sector alliance with the public sector in the ICT industry
- Proposition to have the East African Submarine Cable System (EASSy) Project as one of the case studies of the kinds of challenges that could face PPP and how countries collaborate to achieve ICT development.

#### **Week 5**

##### **Forum on Project Formulation and Regional Cooperation**

##### **Seminar on “Management of Technology Case Development”**

##### **Conclusions and wrap-up**

The final week will be set as a forum discussion on project formulation and a seminar on the development of a case study, from each of the represented countries. The case studies will represent a possible project that can be implemented as a pilot. This project will encompass the different areas discussed throughout the program as well as taking into consideration the specific problems facing each country and the needs in terms of information and communication technology building blocks including infrastructure, human resources, policies, financial vehicles, and managerial capacities amongst other elements.

#### ***Appendix C - Selection Criteria for the Technical Advisory Board***

The technical advisory board should comprise a group of diversified ICT leaders that includes experts and professionals from different sectors comprising the industry, the business sector and academia with a portfolio of background that includes public-private partnerships, experience in regional cooperation in Africa, ICT for development and human resources capacities building among other expertise. Extensive experience and exposure in addition to fluency in English and/or French is mandatory.

#### ***Appendix D – Selection Criteria for Training Providers***

Following is a list of the suggested elements that should be included in assessing the training providers to deliver the African Leadership ICT Program

<b>Criteria</b>	<b>Priority</b>
<b>Premises and Facilities</b> - Equipments (meeting rooms, Internet, PC labs) - Resources and utilities (safety precautions) - Access to an information center and/or libraries - Location and proximity to other facilities - Software licenses - Audiovisual capabilities	1
<b>Track Record</b> - Regional activities conducted (market share locally and regionally) - Types of programs (customized, public, off-shelf) - Curricula <ul style="list-style-type: none"> <li>- Locally developed (within the organization)</li> <li>- Provider of courseware materials (through purchasing or subcontracting)</li> <li>- Copyrights enforcement of course materials</li> <li>- Format of materials offered (session notes, PowerPoint presentations, cases, etc)</li> </ul> - Training process and methodologies - Training volumes	2
<b>Partnerships and alliances</b> - International certifications - Professional accreditations - Affiliations to executive and academic institutions	3
<b>Professionals and Staff</b> - Professional environment - Management style - Organizational literature (communication material) - Instructors (in-house and part-time)	4
Access to facility (security and proximity)	5
Accommodating participants with disabilities	6

The priority is intended to represent guidelines for the advisory board on identifying the major issues to be looking at when doing the assessment.

***Appendix E – Selection Criteria for Trainers/Instructors***

Following is a list of the suggested elements that should be included in assessing the trainers/instructors to deliver the African Leadership ICT Program

- Track record of accomplishments in training and human resource development
- Mastering English or French
- Varied experience (Private sector, government, academia)
- Preference to trainers with experience on Africa
- Knowledge of the ICT sector/applications, ICT for development
- At least 15 years of experience in any of the following fields: planning, strategy, leadership, socioeconomic development, cross culture issues, negotiation, project management and issues related to the proposed modules

***Appendix F - Selection Criteria for Trainees***

Following is a list of the suggested elements that should be included in assessing the trainees that are eligible candidates to apply for enrolment in the African Leadership ICT Program

<b>Criteria</b>	<b>Priority</b>
Education Background (Minimum B.A or B.Sc) Master Degree is a preference	1
Demonstrated interest/commitment to ICT	
Industry Background (ICT related-activities and projects)	2
Age Bracket (30-40 years with 5-7 years of experience in the ICT sector)	3
Managerial and Leadership skills and responsibilities - Ability to anticipate challenges and identify opportunities - Supervisory and training skills	4
Experience in regional projects and activities - Ability to communicate with diversified and multi-cultural audiences (interpersonal skills)	5
Language skills (Proficiency in English or French)	6
Reporting, presenting and communication skills	7
Medical Clearance	8

The priority is intended to represent guidelines for the advisory board on identifying the major issues to be looking at when doing the assessment. It is important to ensure that there is a mix of managerial and technical backgrounds to have a hybrid group of participants complementing each other.

Further elements that could be considered include:

- Ability to communicate with diversified and multi-cultural audiences (interpersonal skills)
- Good negotiations and listening skills (ability to build rapport)
- Ability to develop solutions and recommendations in response to problems
- Ability to work individually and within teams with the same level of proficiency
- Demonstrated self-management skills
- Sensitivity to cultural differences in the working environment
- Ability to anticipate challenges and identify opportunities
- Possesses interactive and creative abilities and skills

### **Appendix G – Budget Elements**

The following represents the budget elements that should be included in the formulation of the cost structure of the 5-weeks program and they are divided into three main cost elements:

- a. Cost related to identification of the training centers and the selection of the trainees to be enrolled in the training program
- b. Cost of conducting each of the 5-weeks of the training program (total should then be multiplied by 5 and also adding the travel expenses)
- c. Cost of centrally managing the 5-weeks training program

Following are the cost details for each of the three elements:

#### **Program Promotion, Training Center Identification and Trainees**

##### **Selection Costs**

- 1 or 2 ads for the promotion of the training program in each of the designated countries
- 1 ad for the recruitment of potentially selected training centers/institutes
- 1 or 2 ads for the recruitment of candidates for the training program

#### **II. Cost of conducting 1-week Training Program**

- a. Travel<sup>3</sup>
  - Travel Expenses

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<sup>3</sup> Travel elements should cover faculty members as well participants

- Accommodation and lodging
- Per Diem per Participant
- Travel Management related costs (insurance, visas, etc)
- b. Venue<sup>4</sup>
  - Training Center/Institute Expenses
  - Opening Reception
  - 2 Coffee Breaks/day (total 10 coffee breaks)
  - Daily Lunch (total 5 lunches)
  - Computing and Internet facilities
  - Instructor Fees
- c. Administration
  - Program Administration (personnel)
  - Curriculum Development (and reproduction) or curriculum purchasing
  - Books
  - Cases
  - Stationary (notepads, pens, name tags, etc)
  - Participants (Bags, Pins, Mugs, etc)
  - Certificates (attendance/completion)

### **III. Cost of centrally managing the 5-weeks Training Program**

- Venue Inspection and Program Assessment visits
  - Travel Expenses
  - Accommodation and lodging
  - Per Diem
  - Travel Management related costs (insurance, visas, etc)

#### **Assumptions**

Costs for each 5-weeks training program should be calculated based on the following assumptions

- 25 participants (each group)
- 5-7 faculty (in addition to 1-2 on-site facilitators per location)
- 5 program administrators (each in one of the 5 locations)
- 2-3 program assessors
- 15 members in the technical advisory committee
- 1 Program director (supported by 2 staff members)

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<sup>4</sup> The total costs per week should be multiplied by 5 in addition to factoring-in the cost of travel of participants between different countries



# THE AFRICAN VIRTUAL CAMPUS



United Nations  
Educational, Scientific and  
Cultural Organization



# The African Virtual Campus

## Background

The African Union Summit of Heads of State and Government, which took place in Addis Ababa (Ethiopia) in January 2007, adopted the Declaration on Science, Technology and Scientific Research for Development (Assembly/AU/Decl.5 (VIII) and the Decision on the Report of the Extraordinary Conference of Ministers of Science and Technology (Assembly/AU/Decl.5 (VIII) and (DOC.EX.CL/315(X)) for which includes the adoption of the *Consolidated Plan of Action (CPA)*.

The CPA evolved from a series of continental and regional meetings of scientists, policy-makers and ministers which began in February 2003 and culminated in the Plan's endorsement by the African Union in Khartoum (Sudan) in January 2006. The implementation plan was subsequently formally approved by the African Union at its Summit in Addis Ababa in January 2007. The CPA articulates Africa's common objectives and commitment to collective actions to develop and use science and technology for the socio-economic transformation of the continent and its integration into the world economy (<http://www.nepadst.org>).

In the spirit of the special partnership called for by the African leaders themselves, UNESCO is eager to play its follow-up role and contribute to the implementation of the CPA at the continental and sub-regional levels, together with the African Union and the Regional Economic Communities. UNESCO's Regional Bureau for Science in Nairobi (ROSTA) and the Division of Science Policy and Sustainable Development in the Natural Sciences Sector (SC/PSD) will play the lead role in this regard.

The Addis Ababa Declaration on Science and Technology and Scientific Research for Development called on “UNESCO and other bilateral and multilateral organizations to support the Member States, Regional Economic Communities and the African Union to implement the Summit decision on Science and Technology”.

The Summit decision focuses on specific areas of intervention and refers, in particular to the need for UNESCO “to support Member States, Regional Economic Communities and the African Union, ... to promote Africa's R&D and develop innovation strategies for wealth creation and economic development...”.

In their interaction with UNESCO, The African Group welcomed the Director General's intention to implementing of three Flagship Projects.

The Executive Board (177 EX/16) and the General Conference ( 193 member states ) of UNESCO (November 2007) approved the Plan of Action proposed by the Director General, which included the flagship projects, one of them being the establishment of the African Virtual Campus.

## 2. Project Description

This project aims to implement the flagship project African Virtual Campus. One of the main obstacles is the lack of science teachers. The need to train large number of science teachers cannot be achieved using traditional teacher training methods. Through the African Virtual Campus, teachers will be trained to use content, methods, materials and activities that are challenging, practical and which respond to the latest developments in science and technology, in addition to being of interest to pupils and relevant to their daily lives and expectations.

The purpose is to contribute to the goal of building the capacities of the African States in science and technology.

### a) African Virtual Campus:

UNESCO will enhance the Capacity Building in the use of ICT in Science and Technology Education & research in the Various universities by setting up of national e-learning centres in the Member

States in Africa.

Train teachers of science engineering technology through e-learning by means of an African Virtual Campus. UNESCO will work with existing educational institutions, and notably the Avicenna Virtual Campus, that it has already established in the Mediterranean Basin with European Commission funding (EUMEDIS Programme November 2002 – December 2006), to develop a regional e-learning network in science and technology in Africa. This Campus can provide the necessary online courses, training and tutoring through a regional e-learning network in science and technology in Africa.

This Campus can provide the necessary online courses, training and tutoring. To achieve this objective, UNESCO will work closely with the existing educational institutions to develop:

- a regional e-learning network in science and technology in Africa.
- **54 Knowledge Centres for e-learning**, one in each participating country will be set up in universities, engineering institutes and/or specialized scientific institutions
- to train the trainers and technical staff in charge of managing the network.
- A quality control mechanism has been put in place to guarantee high-quality online courses.
- Online teacher training of large numbers of science teachers
- New methods, materials and activities of teaching (blended and distance teaching).

#### **b) Science and Technology Education**

Through the African Virtual Campus, teachers will be trained to use online contents, methods, materials and activities that are challenging and practical and respond to the latest developments in S&T, as well as being of interest to pupils and relevant to their daily lives and expectations. This will include South-South cooperation.

- Online teacher training of large numbers of science teachers
- Teachers will be trained to use online contents and in the e-learning concept
- New methods, materials and activities of teaching (blended and distance teaching).
- Online blended and distance training to the students in universities, engineering institutes and/or specialized scientific institutions in Africa.

### **3. Timeframe:**

Estimated Duration	4 years	Planned Start	As soon as funds are available
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### **4. Objectives**

Overall Goal:

There are three implementation goals associated with this project

- Implementation of an online **African Virtual Campus Network for Science & Technology Education** based on the model of the *Avicenna Virtual Campus*<sup>5</sup> (UNESCO & European Commission Network).
- Implementation in the network the four key goals: **sustainability**<sup>6</sup> of quality education, **cost-efficiency** of higher and basic education systems, easier access for teachers and greater

<sup>5</sup> <http://avicenna.unesco.org>

<sup>6</sup> Expert European Commission (EUMEDIS) Final Review Report of Avicenna project 510, 22 September 2006 and Monitoring Report EX-POST –

All Mediterranean Countries – 05/11/07 (Annex III & IV).

enrolment of women; **construction of** open distance learning for education in Africa using the latest technology.

- Implementation of a platform will be used for the sustainable development of science and technology in Africa.

### Objectives in detail:

No.	Description of objective
1	To set up 54 Knowledge Centres for e-learning, one in each participating country in universities, engineering institutes and/or specialized scientific institutions
2	To develop a regional e-learning network in science and technology in Africa
3	To enhance the Capacity Building in the use of ICT in Science and Technology Education & research in the various universities by setting up national e-learning centres in Africa.
4	Online teacher training of large numbers of science teachers
5	Online distance training to students in universities, engineering institutes and/or specialized scientific institutions in Africa
6	Training teachers to use online contents and the e-learning concept

### 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Deliverables	Priority	Est. Cost in US Dollars
1	Development Strategy and Policy	<p><b>I-1 Strategy and Policy</b></p> <ul style="list-style-type: none"> <li>- Strategy and Policy and Needs Analysis</li> <li>- AVCA Network Charter</li> <li>- Kick off Meeting</li> </ul> <p><b>I-2 Development method of the network</b></p> <ul style="list-style-type: none"> <li>- Clarification of the partners roles and tasks within the project</li> <li>- Organization of the different commissions and working groups,</li> <li>- Identification of experts</li> </ul> <p><b>I-3 Organisation of the network and communication tools:</b></p>	<ul style="list-style-type: none"> <li>1- Strategy and Policy report</li> <li>2- Organizational chart for the project and for The Network of AVCA Centres</li> <li>3- AVCA Network consortium charter.</li> <li>4- Methods for the Development of the Network</li> <li>5- Setting up communication channels and tools: the AVCA Intranet and Portal, providing effective communication between partners; electronic</li> </ul>	1	135,558

		<p>- Setting up of the Intranet and online project Management</p> <p>-Setting up of the AVCA portal</p>	<p>discussion groups accessible in different languages; co-operative production tools - a periodical and Multilingual news letter on the project (English, French, and other languages).</p> <p>6- Online system of project management.</p>		
2	Network and Technology Infrastructure	<p>II-1 Define methodology for installation of Technology Infrastructure within each centres; make a study of the existing resources in the partner Universities;</p> <p>II-2 Define technical specifications and standards (for the different media and for systems interoperability), after a state of the art study of existing ODL Platform (synchronous and asynchronous) of data base management and operating system;</p> <p>II-3 Choice of platform and tools for ODL</p> <p>II-4 Installation of Technology Infrastructure within each partner ODL</p> <p>II-5 Installation of software and platform: Training.</p> <p>II-6 Installation of specific technology for blind or visually impaired students</p>	<p>* A functional AVCA Network infrastructure accessible to teacher, students and Blind teachers and students</p> <p>* 54 ODLs operational with all facilities and their communication infrastructure</p>	1	1,314,778
3	Human Resources Development	<p>III-1 Training of ODL Directors</p> <p>III-2 Training of ODL technical experts (infrastructure, network, platform, data bases management)</p> <p>III-3 Training 3 of Directors and experts</p> <p>III-4 Training 4 of Producer (on technical production of online modules)</p> <p>III-5 Training 5 of Tutors</p>	<p>* 54 ODL completely staff trained and certified</p> <p>*162 experts trained in distance education (3 in each centre) permanent staff).</p> <p>* 5 000 experts trained on the engineering production of online multimedia courses.</p> <p>* 9 000 tutors trained in distance education methods.</p>	1	1,641,038

4	Organisation of online Production & Quality Control	<p>IV-1 Organisation of the production and validation of the pedagogical chart: setting up the scientific council. Study and selection of available existing course content for the “AVCA Virtual Pedagogical Library” database</p> <p>IV-2 Organisation and control of the production flow and process (methodology and quality control)</p> <p>IV-3 Test production</p>	<p>- The course and module production requirements will be defined, organised and tested within accepted common pedagogical standards and quality checking procedures. The ODL environment and services will be defined.</p> <p>- The testing of the ODL environment (experimental phase) will be prepared: minimum 50% of the DLCs will establish a complete test bed with university, training of trainers / producers, tutors, teacher training and student training for experiment phase.</p>	1	391,701
5	Online modules production process	<p>* Review the status of the rights, notably the intellectual, economic and industrial property rights in respect of the Works, and of the AVCA network. Produce an author contract which will be accepted by all the Universities.</p> <p>* Production of 1 000 online modules, (20 hours)</p> <p>* Around 10% will be translated / adapted (into other languages). The AVCA Scientific Council will select the modules.</p> <p>* Define, create and optimise the ODL environment with adjustment to each ODLC specific context (linguistic, cultural, educational, user groups, user needs).</p> <p>* Validate the ODLCs distance education process and services. Before and during the deployment period.</p> <p>* The work programme will be adopted by the scientific council</p> <p>* The production flow and methodology are set up during the whole production period of the project.</p> <p>* Existing modules will be translated or adapted.</p> <p>* All project partners will be involved in this process of 4</p>	<p>* The average production by partner (including co-production) is evaluated at 2 to 4 online modules (20 hours) per semester. The production will only start effectively during the second semester of the project.</p> <p>* At the project end the AVCA network production and translation / adaptation will be around 1 000 modules.</p> <p>* The translation or adaptation of already existing courses will bring around 10%.</p>	1	9,791,265

		<p>period of production and one for translation and adaptation</p> <p>V-1 Production 1 of online Courses</p> <p>V-2 Production 2 of online courses</p> <p>V-3 Production 3 of online courses</p> <p>V-4 Production 4 of online courses</p> <p>V-5 Translation and adaptation</p>			
6	African Virtual Library in S&T	<p>- To install a server and a data base of existing course content, of links toward available resources, (available on line or off line courses, electronic documents, electronic library, catalogues and specialized data bases).</p> <p>- To develop, adjust and install all tools needed for complete ODL production and services (indexes and thesaurus, auto-evaluation modules, quiz.)</p> <p>- This database will serve as a « knowledge database » to enable a better sharing of know-how, resources and experiences over the project between universities and tutors. This database will include specific basic training in computer science and ICT (these are the training courses used for the training of ODLCs staff).</p> <p>- This “AVCA Virtual Library” will include meta data and tools to facilitate the production and process; it will provide a best teaching environment for</p>	<p>Technical aspects: - The AVCA Virtual Library will be installed on a (Streaming) server in each AVCA Centre with a mirroring process.</p>	1	470,053

		Universities.  - The “AVCA Virtual Library” will be made open to students with a specific organization and management of the access.			
7	Quality control of Online Training Process	VII-Q-C Online Training 1-2 VII-Q-C Online Training 3-4 * Set up a complete ODL environment in 54 ODLCs * Set up testing procedures and evaluation criterion and rules. * Test, observe and evaluate the ODL services (by external experts)  * Evaluate the infrastructure functioning  * Report on the test, analyze the test reports, and propose corrective measures * Development of the Blended learning process in the 54 ODLCs during the Online teacher training process.	* 54 ODLC fully operational, all the partners are involved  * The quality expert plus experts designated by each partner evaluate the results * The corrective measures are validated by the different expert groups and the scientific council  * At the end of the project period <u>around 50.000 students are expected to be trained online.</u>	3	848,732
8	Dissemination, seminars and conferences	* Awareness Campaign (continuous) for Dissemination and seminars  * Information & Demonstration Campaign in each University partner  * Development of partnership and network extension  * Organisations of and participation in regional and international conferences	* Communication about the AVCA project will contribute to the extension of the network and its strengthening through wider and stronger partnership in AFRICA and Mediterranean and African countries.  * The exploitation plan will be drafted early enough in the project to provide viable solutions to further functioning of the ODLCs (either as local node within their country network or as an AVCA Network)	1	267,220
9	Project management	1- Project management: adopting adequate project management and communication tools for management, reporting, quality measurement, communication between partners 2- Review meetings	* Intermediates and final technical and financial reports. * Intermediate Reports * Final report * Final review will produced by external experts.	1	1,419,307

		3- Production of intermediate technical and financial reports (3) 4- Production of final technical and financial reports (1)			
			<b>Grand Total</b>		<b>16,279,652</b>

### Expected results

- Network of 54 fully operational “Distance Learning Avicenna Centres” one centre in each African country;
- 162 experts trained in distance education (3 in each centre) permanent staff).
- 5 000 teachers trained on the engineering production of online multimedia courses.
- 9 000 tutors trained in distance education methods.
- 1 000 modules produced (production and translation / adaptation).
- 50.000 students are expected to be trained online.
- An online “African Virtual Library in S&T” containing online modules and teaching resource material;
- Model of High quality online modules produced of 20 hours each;
- An African platform as a basis for the development of the African Virtual Campus to cover all the African countries in the end of the year 4.
- The network will be used for training students, teachers and adults in large numbers

### Performance Indicators

Indicator 1:

A sustainable Virtual Campus (SELF-PERPETUATING campus based on cooperation between institutions)

Indicator 2:

High quality online modules produced of 20 hours each

Indicator3:

Online courses, in physics, chemistry and natural sciences and science and technology for secondary and higher educational institutions in place by the Year 3

Indicator 4:

Online high level courses in science statistics analysis

Indicator5:

At least 1000 teachers (in each region) trained and skills acquired in the production of online courses, so they can train teachers in their own countries.

Indicator 6:

Up to 2000 (in each region) tutors trained in distance teaching methods

Indicator 7:

At least 10 000 students enrolled (in each region) and using the online courses of the virtual network

Indicator 8:

Virtual Library in Science and Technology developed and shared between all the partners containing teaching resource materials

Indicator 9:

National and regional Open and Distance Learning System for the Higher and secondary Education.

Indicator 10:

Students will use and share the African Virtual Campus Network.

### **Risk Factors and Mitigation Measures**

#### **1. Lack of political reform and technology infrastructure**

Certain African countries have not as yet embraced the virtual campus and e-learning concepts in the education system in different levels. Those that have, have difficulty in maintaining the system (Higher and basic institutions).

Additionally, many African countries have not as yet developed their policy reforms in STI and ICT.

**Risk: Medium**

Proposed action(s) to address the risk factor:

UNESCO and AUC UNESCO will officially request a strong commitment from the high-level authorities to set up a strategy and policy mechanism for the integration of the e-learning and virtual concept into the Education system. UNESCO will also use its convening powers through the African Ambassadors to UNESCO and the UNESCO National Commissions based in the different countries Ministries of education.

The process will be set up during the development of the project.

#### **2. Obstacle of the internal rules of the partner institution**

In the African universities, the capacity building process of the human resources is not established as a regular process. The use of the ICT and e-learning concept will be new in the education system.

**Risk: Medium**

Proposed action(s) to address the risk factor:

To maintain the sustainability of the capacity building of human resources (teachers, tutors and staff) the following will be proposed:

- The establishment of an annual program
- The reinforcement of the network activities at the national and regional level .

Given the advancements of technologies in the world and the commitment by the African Ministers to engage in the use of ICT, capacity building will be continued and recognized.

#### **3. Lack of the strategy and development program of the national education system**

The development of the online production process will need dedicated staff, budget and the periodical review of the existing material. Weak STI reforms in many African countries could impede sustainability and quality control.

Risk: **Medium**

Proposed action(s) to address the risk factor:

In order to maintain dynamic and sustainable production process and quality control, it will be necessary to integrate them into the regularly activities of the education institutions. In addition, a mechanism of quality review control will be set up at the onset of the project. This mechanism will be continuously reviewed throughout the project to ensure the highest quality and sustainability.

#### 4. Lack of the renewable technology infrastructure and the technical maintenance

The maintaining of a competent technical team is necessary and fundamental. The regular update of the virtual library with continuing national and regional production process needs a high-level management during and after the completion date of the project.

Risk: **High**

Proposed action(s) to address the risk factor:

The main national e-learning centre will be set up with the best information technology faculty of the country so as to maintain and ensure the continuity of the library.  
The reinforcement of the national centre will guarantee the development of this activity. It is therefore proposed to hold regular meetings and updates on the status of the main national centre. This centre will be chosen together with the national authorities to ensure support for the centre during the lifetime of the project.

#### 5. Lack of the development of national network and the integration of the basic education in the process

The development of the national network is essential for all the education system in the country partner.  
Many Avicenna partners in the Mediterranean region, have been developed through this process in their own countries and have been successful.

Risk: **Medium**

Proposed action(s) to address the risk factor:

The main national centre will be open to all national institutions involved in the education system. It will organize regular teacher training sessions for different levels.  
During the development of the project, it would be useful to launch a national project for teacher training in cooperation with the ministry of education. Dissemination methods will be developed in collaboration with the education systems.

### **Implementation Arrangements**

The African Union Commission (AUC) will act as the project coordinator.

UNESCO will act as the Implementation Agency in agreement with the AUC and the European Commission (EC).

UNESCO has the capacity to engage and mobilize competent Component Leaders through its extensive network such as UNESCO offices, UN agencies and UNESCO National Commission across the continent. It has also successfully demonstrated competence in implementation of similar project (Avicenna Virtual campus) in the Mediterranean region in cooperation with European Commission.

### **Monitoring and Evaluation**

It will be in line with procedures agreed between the AUC and the partners.



# **HARNESSING INFORMATION & KNOWLEDGE FOR YOUTH DEVELOPMENT**

## **Harnessing Information & Knowledge For Youth Development**

### **Background**

On the 15<sup>th</sup> of March 2004, several African Youths from various countries living in Africa and the Diaspora came together on the African Youth Information Society Initiative discussion list. The Discussion List was an initiative of the United Nations Economic Commission for Africa (ECA) in the framework of the African Information Society Initiative (AISII).

The discussion aimed to create a platform for African youths to share experiences and knowledge in order to help develop innovative approaches to their needs and to establish a dialogue with public and other stakeholders in devising and implementing the WSIS action plan at country and regional levels. The points of discussion are: Policies/Strategies, Education, Employment, Entrepreneurship and The way forward. At the end of the online discussion it was agreed by the participants that African Youth ICT4D Network (AYIN) be formed to build a generation of young Africans empowered with ICTs to actively participate in the Information Society and invariably contribute to the development of the continent.

Thus on the 4<sup>th</sup> of February, 2005 the African Youth ICT4D Network (AYIN) was inaugurated during the African Regional Conference for the World Summit on the Information Society that took place in Ghana.

### **Project Description**

Africa's youth population as a proportion of the total is increasing and projected to be over 50% by 2015. Youth currently account for 45% of the total labour force, and unlike other continents, Africa's population is becoming more youthful.

Therefore the pace, depth and scope of Africa's development in the 21<sup>st</sup> Century would depend on how best the continent's youth resources are nurtured and deployed. An area where young people have an edge is the emerging Information Society driven by new technologies. Young people are often the leading innovators in the use and spread of Information and Communications Technologies. They adapt quickly and are generally quite hungry for the great quantities of information, locally and globally, that can be provided through emerging Information and Communication Technologies.

As recognized in the WSIS Declaration, "Young people are the future workforce and leading creators and earliest adopters of ICTs. They must therefore be empowered as learners, developers, contributors, entrepreneurs and decision-makers. We must focus especially on young people who have not yet been able to benefit fully from the opportunities provided by ICTs. We are also committed to ensuring that the development of ICT applications and operation of services respects the rights of children as well as their protection and well-being". Young people shall remain an untapped resource if the mainstream ICT4D community does not integrate their knowledge, vision and experience.

The African Youth ICT4D Network (AYIN), which is the leading institution with a structure that has sub-regional representatives and support from multidisciplinary experts team, constitutes a regional

network of its kind. It is expected to work with regional institutions (ECA, ITU, AUC) and Regional Economic Communities), national youth-led networks (including youth councils) and thematic networks to deliver its' goals.

The current project aims at harnessing the potential of knowledge and technology, and to find effective and innovative ways to put this potential at the service of African Youth development.

**Timeframe:**

Estimated Duration	3 yrs	Planned Start	As soon as funds are available
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**Objectives**

**Overall Goal:**

*Description of overall goal*

To harness the potential of knowledge and technology, and to find effective and innovative ways to put this potential at the service of African Youth development.

Objectives in detail:

No.	Description of objective
1	<ul style="list-style-type: none"> <li>To strengthen the institutional capacity of the African Youth ICT4D Network (AYIN) and national youth networks in participating countries and sub-regions;</li> </ul>
2	<ul style="list-style-type: none"> <li>To establish 20 youth training and information centers (YTIC), 15 community information centers(CIC), and support existing training centers for youth e-skill development.</li> </ul>
3	<ul style="list-style-type: none"> <li>To ensure youth input into Africa’s Information Society interventions</li> </ul>
4	<ul style="list-style-type: none"> <li>To Identify potential youth organization partners and communities where the project can be implemented through the conduction of a National Youth Campaign in each participating countries;</li> </ul>

**Activities and Estimated Cost**

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost (\$)
1	Call for Country Participation	Announcing AYIN's operations and calling for support (with Governments and other institutions) for AYIN activities in various countries – to make AYIN truly continental in scope.	1	12,000
2	Research Consultancy	Conducting baseline research on Youth and ICTs, capacity development needs' assessment and a pan-African ICT Youth Index	1	350,000
3	Secretariat	Establishing the AYIN Steering Committee, staff recruitment and AYIN secretariat establishment	1	105,000
4	Monitoring and Evaluation	Developing a sustainable Monitoring & Evaluation mechanism	1	26,500
5	Portal Development	Upgrade of AYIN website and development of ICT youth portal connecting to national portals	1	18,000
6	Feasibility Studies	Undertake feasibility studies and cost-benefits analysis for the creation of Youth Training and Information Centre (YTICs), Community Information Centres (CICs), Community Radio (CR) projects for youth development, and Community Multimedia Centres (CMCs) based on local languages	1	100,000
7	Best Practice Documentation	Make a series of 10 short movies in several countries in Africa to showcase Youth ICT entrepreneurship success stories	1	100,000
8	Events and Activities	Organize an annual African ICT Youth Festival (AIYF), regional ICT Quiz/Essay Competitions and National Information Society Youth Campaign	1	144,000
9	ICT Youth Incubation Funds	Design, setup and disbursement of ICT Youth Incubation Funds for selected incubator projects in at least 5 countries	1	550,000
10	ICT Centres with special focus on rural areas	Establishment of 20 Youth Training and Information Centre (YTICs), Community Information Centres (CICs), Community Radio (CR) projects for youth development, and Community Multimedia Centres (CMCs) based on local languages	1	1,900,000
11	Audit	Conduct audit of AYIN activities for a 3-year period	1	20,000
12	Contingency	Ad-hoc	1	50,000
			<b>TOTAL</b>	<b>3,375,500</b>

## Expected Results

- A functional framework for involving Youth in decision-making process related to building an inclusive Information Society in Africa established;
- Comprehensible network functional at national, sub-regional and global levels to foster Youth engagement in the Africa Information Society Initiative (AISII) and WSIS implementation and beyond
- Five Sub-regional Centre well equipped established and functional
- 20 youth training and information centers (YTIC), community information centers(CIC), and support existing training centers for youth e-skill development.

## Performance Indicators

Indicator 1:

To strengthen AYIN and youth organisations in African countries and at the regional level:

- (a) Number of outreach activities undertaken by AYIN
- (b) Quality of AYIN website content
- (c) Quality of youth policies
- (d) Quality of monitoring and evaluation activities

Indicator 2:

To implement ICT training and establish Youth Knowledge Resources Centres:

- (a) Quality of the infrastructure
- (b) Quality of the training programmes
- (c) Number of managers trained and positive response to knowledge assessment
- (d) Number of awareness-raising and training activities organised by ICT Clubs

Indicator 3:

To train critical mass of youth

- (a) Number of participants and number able to explain opportunities to harness ICTs for youth development
- (b) Number of Youth Index documents disseminated and feedback received
- (c) Statistics from website
- (d) Quality of the evaluation report and recommendations

Indicator 4:

To promote ICT Youth Innovation

- (a) Number of ICT Youth led projects selected and supported
- (b) Quality of projects selected
- (c) Number of awardees and quality of their work

## Risk Factors and Mitigation Measures

1. Lack of funds;

Insufficient budget can be the major hindrance of the project

**RISK: High**

Proposed Actions to address the risk factor:

Securing funding for first few years (e.g. 3 to 5) of operations to ensure stability before the resumption of additional fundraising strategy.

2. Lack of political support:

The project can face difficulties if there's lack of political support at sub-regional and national levels

**RISK: Medium**

Proposed Actions to address the risk factor:

From our experience, successful projects are able to get political support after their success has become celebrated even beyond the borders of their operations. We, however, do not under-estimate the critical role of political support so we will keep political structures informed of the progress of our work.

3. Insufficient project staffing:

The lack of experienced staff - trained and skilled - to develop and deliver the project's activities, and the fact that the network is presently led by volunteers

**RISK: High**

Proposed Actions to address the risk factor:

The project need includes immediate engagement of full-time staff, while the coordinating bureau will also be entitled to periodic remuneration, as agreed by the oversight structures.

4. Lack of adequate involvement by the Project Steering Committee

When the project steering committee does not organize and fully participate in the designated periodic meetings so as to provide oversight and ensure that the project is on track

**RISK: Medium**

Proposed Actions to address the risk factor:

Noting that AYIN is an ICT-friendly institution, we will encourage the use of new communication tools (e.g. VoIP, chat, eMail, etc) to stay in touch with the Project Steering Committee in order to prevent communication gaps.

## **Implementation Arrangements**

The project requires efficient and effective project management. A project management infrastructure including project initiation, administration, organisation and technical management, will include:

### **Project Steering Committee (PSC)**

The PSC is the formal decision making body of the project and hence only the PSC has the authority to make global decisions within the project.

The Economic Commission for Africa (ECA), the main institution which supported the establishment of the African Youth ICT4D Network, will be the *de facto* Chair of the PSC. AYIN Coordinator will be the representative of the PSC within the Executive Committee. Other members of the PSC will include (upon their agreement), African Union (AU), International Telecommunication Union (ITU), UN Division of Sport, Representative from participant countries and youth reps from five regional Economic Communities

The PSC will meet regularly every six months. Additional meetings may be called by the project coordinator, or at the request of partners. Each of the partners will communicate with the PSC via his own PSC delegate. Associate partners and sub-contractors are fully represented by their respective partners. The PSC makes decisions by voting where each partner has one vote, independent of the number of delegates present at the meeting. The PSC's primary role is:-

- a. Definition, oversight and re-definition of work-plan, calendar and budget distribution revisions, if necessary.
- b. Setting up of a resource plan for the project and monitoring effort expended. Financial budget control is devolved to the partners.
- c. Setting up efficient partnership communication channels and web-site.
- d. Defining the delegation, reporting and monitoring methodology to ensure efficient execution of work packages on time.
- e. Applying the evaluation criteria to ensure quality of deliverables, meeting of deadlines, attendance at periodical meetings and usefulness of output for workshops.
- f. Drafting of reports to the PSC and ensuring they are delivered on time.

### **Project Executive board (PEB)**

The PEB will consist of AYIN Coordinator, the project coordinator and the project personnel. They are responsible for all aspects of the implementation of the adopted plan of action, recruitment of consultants, and partners in consultation with the PSC President.

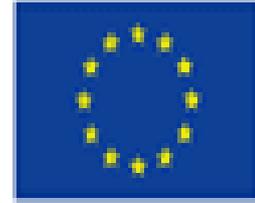
### **National Implementation Management**

A multi-stakeholder (government, business and civil society) country youth network shall be built upon the closest existing social structure to act as national implementing mechanisms in participating countries.

At the village level, a local youth organization, preferable a network or coalition of various smaller community-based groups shall be identified through the initial phase of the project to be frontline implementers and beneficiaries of the project. They shall be governed by a structure and mechanism that they themselves have identified and institutionalized.

### **Monitoring and Evaluation**

It will be in line with procedures agreed between the AUC and the partners.



## **Part 2**

**"Support S&T capacity building in Africa  
and implement  
Africa's Science and Technology  
Consolidated Plan of Action – CPA "**

**(S&T)**

## Part 2

### S&T

#### Rationale

This priority action is dealing with the capacity building in Africa and with the implementation of the Africa's Science and technology Consolidated Plan of Action.

In this framework it has to be underlined that some important and relevant scientific sectors, as i.e. the medical area, are not present. This is because they are priorities but they are covered via other actions and agreements (i.e. the EDCTP Programme – European and Developing Countries Clinical Trials Partnership).

Within this framework four major sections were defined with the following logic:

- 1) Strengthening the capacity building of the AUC-HRST Department to launch and manage the process of call for research projects (mirror effect of EC Calls for research proposals);
- 2) Enhance the capacity to provide visibility to the existing African research (mirror effect of EC Descartes Prizes)
- 3) Enhancing the capacity building of the African structures dealing with science, technology, research and innovation
- 4) Enhancing the capacity of the African structures dealing with thematic considered as priorities for the African Continent (mirror effect as European Research Council, and the Joint Research Center).

In an effort of rationalisation the projects are presented indicating organisations (UNESCO, FARA, ...) that have the capacity to implement them under coordination and synergy with the AU Institutions or Departments.

The level of the project formulation is not equal. Inputs, suggestions and comments are more than welcomed.

## **S&T PROJECTS**

### **SECTION 1: AFRICAN RESEARCH GRANTS**

Project:

- Capacity Building: EU-AU Africa research grants
  - Project text
  - Work Package

### **SECTION 2: POPULARIZATION OF S&T**

Project:

- Popularization of science and technology and promotion of public participation

### **SECTION 3: CAPACITY BUILDING IN S&T AT AFRICAN LEVEL**

Projects:

- Development of a Common African Union Science and Technology Policy Framework
- Science and technology for the development of African Small Medium Enterprises and support business incubators network
- Securing and Using Africa's Indigenous and Traditional Knowledge
- Pan African intellectual Propriety Organization (PAIPO)
- African Observatory of Science, Technology, and Innovation (AOSTI), and Policy Development

### **SECTION 4: CAPACITY BUILDING AT THEMATIC LEVEL**

Projects:

- Water and food security in the Nile basin
- Building Africa's Scientific and Institutional Capacity (BASIC) in Agriculture and natural Resource Management
- Harnessing Biotechnology for the Advancement of African Agriculture
- African Pole of Excellence on Desertification and Forestry
- African Union Initiative on Climate Change (African Institute on Climate Change-AICC)

## **Section 1: African Research Grants**

### **Project**

Capacity Building: AU –EU Africa Research Grants



# **CAPACITY BUILDING: EU- AU AFRICA RESEARCH GRANTS**

- **Project Text**
- **Work Package**

# CAPACITY BUILDING: AU - EU AFRICA RESEARCH GRANTS

## 1. Background

As demonstrated at the “Science with Africa” Conference in Addis Ababa the 3-5 March 2008, in many African countries, since years, there are research activities conducted at national and international level by African researchers.

The Africa’s Science and Technology Consolidated Plan of Action (CPA) implementation strategy, endorsed by AMCOST III Mombasa 2007, calls upon the African Union commission (AUC) to identify innovative ways that will foster the implantation of the CPA and to ensure more participation and involvement of the African Scientists and Institutions in the CPA implementation efforts.

It is now compulsory to strengthen the capacities of African researchers and scientists by facilitating the integration of their efforts for the sustainable development of the Africa continent. The cooperation on specific scientific topics, sharing data and scientific knowledge, at national, continental and international level will create the conditions for better understanding and solving the African problems via the African scientists.

The already existing scientific excellence will be acknowledged via a transparent evaluation procedure. In this way the African Union Commission will provide the support to those institutions and consortia able to consolidate their scientific excellence at supranational and African continental level. The pragmatic challenges for the African researchers will be to work together creating supra-national consortia complementing among themselves their scientific competences.

The AUC - Human Resources Science and Technology (HRST) Department will structure, launch and implement public calls for research proposals at the African continent level with the main aim to strengthen the research capacity of the African infrastructures by consolidating, sharing and networking their accumulated asset of scientific knowledge.

The AUC-HRST will be responsible to structure and implement the whole research selection process (identification, evaluation, contracting and monitoring) during the three year project. This experience will allow HRST Dpt accumulating the necessary knowledge asset to be further developed in a future African research framework programme.

## 2. Project Description

The AUC – HRST Department will experience to launch specific calls for African research proposals. It will initiate with the first Call the next 01st December, 2008 with deadline the of 1<sup>st</sup> May 2009. The first call will focus initially "Earth and life sciences" sector including the main thematic areas on water, agriculture and energy fields.

Based on this first experience, two other Calls for proposals will follow: the second to be launched before the end of 2009 (possibly in November) on six thematic areas; and the third in 2010 (always in November) with deadlines five months after, on 9 thematic areas (the six already identified more other three to be defined according to emerging research needs).

Each Call for proposals will be redacted in the 4 AU languages, published in the media and

disseminated to: research and academic institutions, Academies of Sciences, competent Ministries and Regional Authorities, EC Delegations, Civil Society Organisations, and all other concerned or interested structures / institutions.

The HRST Dpt will recruit a specific African secretarial and technical staff in order to implement the different phases of the Call: work package preparation and dissemination, proposal evaluation, redaction of research contract, and monitoring the implementation of the research actions.

The first year experience will allow the HRST Dpt to acquire the necessary experience on how to better manage and tuning the second and third call. The whole exercise will create the basis for creating and maintaining a permanent structure supporting the research activities in Africa via specific calls for proposals.

### 3. Timeframe:

Estimated Duration	Three years	Planned Start	October 2008
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### 4. Objectives

Overall Goal:

#### *Description of overall goal*

The general objectives of this programme are: to promote sustainable science and technology research for Africa technical, economic and social development by building at the HRST Department the capacity to manage a research programme; and to allow the HRST Department to experiment the launching, implementation and monitoring of three calls for proposals, in different scientific thematic areas related to earth and life sciences and to science, technology and innovations sectors.

#### Objectives in detail:

No.	Description of objective
1	Creation at the HRST of the specific section able to manage, follow and implement the whole project process: launch, evaluate, contract, and monitor research activities at the Pan African level.
2	Identification of the relevant research institutions in Africa in the main scientific thematic sectors: Earth and life sciences and Science , technology and innovations; and creation of the relative address data base in contact with the African Academia of Sciences and the S&T Observatory.
3	Definition of criteria for creating scientific research consortia, in particular the Consortia capacity to integrate and manage research institutions of different African countries;
4	Preparation; publication and dissemination of the 3 Calls for proposals (December 2008, November 2009 and November 2010) and the related work packages.
5	Two steps evaluation procedure for the selection and ranking of the received proposals: a) Evaluation, selection and ranking of the received proposals by anonymous expert panels; b) Examination and approval by the Advisory Management Committee and presentation to the AMCOST Bureau
6	Negotiation of the retained proposals and their transformation in research contracts
7	Monitoring of the implementation of the contracts upon presentation of ad hoc reports and with direct contacts on the ground.
8	Annual appraisal of the whole process, proposal of modification and adaptation according to the conducted experiences. Redaction of an Annual Implementation Report with analysis and recommendations

### 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives  
Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.  
Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost
1	Creation of the HRST Section to manage the Call – Contract Process	Recruitment of two additional Scientific Officers, a financial officer and of three secretarial supports and one assistant competent on electronics devices and software (contract costs will be covered by the project Budget). Additional temporary staff could be also recruited due to temporary activities. These personal will be under the responsibility of one defined HRST Officer	1	Salaries (*) of: 2 Scientific Officers 1 financial officer 1 ITC Assistant 3 Secretaries
2	Identification of the relevant research institutions in Africa in the two main scientific thematic sectors: Earth and life sciences and Science , technology and innovations	This activity has to conduct to the creation of a database with addresses of researchers and scientific institutions classified by scientific or institutional field. Existing data bases (the list of participants to scientific Conferences, Workshops, Seminars, Africa Academia of Science, CERs, Ministries and EC Delegations in all African State Members, etc.) have to be included /connected to this data base.	1	Cost of the work covered by the salaries of the ITC assistant and the specific secretarial support
3	Definition of criteria for creating scientific research consortia, in particular their capacity to integrate and manage research institutions of different African countries;	Identification of evaluation criteria covering two main concept: the scientific excellence; the construction of an African research area (supranational consortia composition, number of scientific institutions involved, response to sustainable development principles, % of funding according to the activities, duration of the contracts, ...) The criteria have to be communicated in the work package accompanying the call for proposal. They have to be clear, transparent and responding to select scientific excellence and AUC requisites. Work to be done by the HRST Dpt jointly with the EC technical services.	1	Costs covered by the salary of the Scientific Officers.
4	Preparation; publication and dissemination of the Call for proposals and the related work package to the identified research institutions via the address database and announced in web sites, media in particular newspapers, bulletins (i.e. of Africa Academia of Science), via the CERs, Ministries, and EC Delegations in African State Members.	The call will be edited in the four languages and it will be accompanied by a Work Package providing details, guidelines, evaluation criteria, forms to be filled. The call will be published in the main African media and disseminated via the mailing list described at the point 2.	1	Cost of the work covered by the salaries of specific recruited people plus the cost of paper and specific electronic devices and media publications

5	Evaluation of the proposals:  a) Creation and implementation of an independent evaluation procedure using anonymous panel of experts competent in the specific scientific fields: they will identify the research proposals and accompanying activities to be supported.	Panel of anonymous experts will not have an honoraria to participate in the panel evaluation. However expenses entailed to travel and attending meetings will be covered and a specific indemnity will be provided. The panels normally meet one per year in the AU headquarters in Addis Ababa for an average period of three days. They will prepare an evaluation scientific report for each proposal, before attending the meeting. Discussion of reports and retained proposal in scientific point of view will be decided during the meeting. Each scientific field will be covered by one or more panels. Each panel may be composed by minimum three to maximum six experts.	1	<ul style="list-style-type: none"> <li>• Travel Tickets</li> <li>• Per diems</li> <li>• Specific Indemnity</li> </ul>
	b) Examination by the Advisory Management Committee and presentation to the AMCOST Bureau for final approval	Examination of the evaluation process, a discussion on the results and the provision of an opinion on the shortlist by the Advisory Management Committee (permanent body) composed by scientific and research experts of the five regions		<ul style="list-style-type: none"> <li>• Travel Tickets</li> <li>• Per diem</li> </ul>
6	Negotiation of the retained proposals and their transformation in research contracts	Each retained proposal will be converted to a specific contract under the rules defined jointly between the AUC and the EC services. Work in particular of the 2 AUC scientific officers	1	Covered by the salaries of the recruited staff
7	Monitoring the implementation of the research projects and of the structuring consortia	Specific monitoring by the AUC Scientific Officers.		Covered by the salaries of the recruited staff
8	Publish an annual report on the implementation of the call and of the research activity proposing the adaptation of the whole proposed process.	Draft to be prepared by the 2 scientific officers approved and final redaction under responsibility of the HRST dpt.		Paper and reproduction costs
	Salaries of recruited staff, experts, meetings, paper, devices, software, etc.: 6% Total amount of funds to support research consortia:			€: 2.1 Millions €: 33.9 Millions
		<b>Total cost in EUROS</b>		<b>€: 36 Millions</b>

\* Temporary contracts and salaries according to the AUC rates.

**Requested EC contribution:** € 36 Millions over 3 years.

**Note:** Total budget for each ear Call for proposals: €12 millions (in average, €2 Millions for each scientific field), the EU contribution will cover also the cost of implementation estimated at 6% of the whole envelope.

The budget allocation for the first call will be €6 millions as we are considering only 3 scientific fields and the remainder of the budget will be distributed unequally over the 2 next calls: 12 millions for the second and 18 for the last call.

## 6. Expected results

- Launch of 3 Call for proposals at least in specific scientific research fields of Earth and Life Sciences;
- Structuring on a permanent durable basis the nucleus at HRST Department to launch, monitor and implement calls for proposals on year basis;
- Fund, monitor and support a target of at least 50 research projects in three years time (+/- 9 the first year, 18 the second and 27 the third one).
- Consolidate the scientific research environment in Africa through the establishment of supranational research Consortia with execution of specific researches acknowledged as excellent;
- Exchange of researchers, sharing of data and knowledge, and strengthened integration at national and Continental level within quantified after the first year of evaluation;
- Achieving a remarkable level of implementation of the CPA research priorities;
- Acknowledgement of the role, support and presence of the AU and the EU Partnership among the scientists and the research institutions.

## 7. Performance Indicators at level of the AUC Research Grant Programme

**Indicator 1:** Promoting research collaboration in the framework of the AUC funded research activities

- Number joint research grants applications and their rate of evolution in the implementation of the whole programme.
- Rate of "success": proposal presented on research contracts assigned.
- Number of collaboration established among scientific institutions.
- Number of common initiative established in common scientific research fields
- Number of joint PhD and Masters supervisions resulting from the execution of the AUC funded research activities
- Number of publications in African national and regional research priority areas
- Number of joint publications with international partners
- Number of articles or media reportages, illustrating the research activities conducted under the programme

**Indicator 2:** Development of an active research community in Africa with international relationship

- Number and duration of visits by African researcher involved in the AUC research activities to visit international leading research groups
- Number and duration of leading international researchers visiting African institutions
- Number of joint publications with leading international researchers
- Number of joint grant applications with leading international researchers
- Number of the African research community aware on the EU-Africa partnership and its role in the Africa's developments

**Indicator 3:** Production of a highest quality research outcome of the AUC funded research activities

- Number of publications in leading conferences and journals in African or international specialised literature
- Number of patents derived by the research results
- Number of Invitations to address international conferences
- Number of scientific publications in proceeding of international workshops

- Number of Peer reviewed international scientific magazines

**Indicator 4:** Impact of research results in future African research AU- EU Africa research grants program

- Number of user groups interested and seeking technical advices from the output of the project research results
- Number of awareness programs at the government, industry and user group levels
- Number of AUC funded research activities linkage grants and applications
- Number and relevance of case studies useful to industry players and targeted user groups for the identified strategic scientific fields.
- Number of industry-linked African research grants awarded i.e., PhD, maters students and honours projects
- Number of major strategic industry partners to be involved in the research results of the grants program.
- Number of research papers presented in user conferences

**8. Risk Factors and Mitigation Measures**

**1. Organisation risks:**

Organisation risk can be determined by:

- Inefficient team structure
- Management review and decision cycles is slower than expected
- Budget approval take longer than expected
- Budget cuts
- Tasks processes are abandoned under time schedule or cost pressures
- Planning is too poor to support the desired development speed
- Delay in additional personnel recruitment to meet schedule pressures
- Lacks of the identification of a data base related to scientists and scientific institutions under time schedule

**RISK:** High

Proposed Actions to minimize risk factor:

- Assure that the financial support be available at the beginning of each call for proposals.
- Funds have to be available according to the decisions of the AU-EU partnership before to launch the calls 2 and 3, the whole specific team has to be recruited.

**2. Financial risks:**

Financial risk can result from:

- Budgetary allocations for the research activities risk being not sufficient as planed in the project proposal, due to unexpected changes (increase) in research equipment prices.
- Cost control equipment and services

**RISK:** Medium or Low

Proposed Actions to minimize risk factor:

- Allocating a first advance of payment of 35% of the total budget and requesting to buy immediately the necessary equipment.

### **3. Operational risks**

Organisation risk can be determined by:

- Excessive administrative burdens
- Facilities are not available or are available but inadequate (e.g., no phones communications, lack of network wiring, computers operating, etc...)
- Too much formality regarding bureaucratic adherence to the project activities and objectives
- Communications tools between the project partners do not work as expected
- Limited or poor creation of database in time schedule that could not be representative of the African scientific institutions. This could constitute a constraint for getting a good quality of research proposals.

**RISK:** Medium to High

Proposed Actions to minimize risk factor:

- Structuring the team specific recruited for launching and following the whole proposal process.

### **4. Legal and contractual risks:**

Risks may include, but are not limited to:

- Financial reporting standards
- Research contacts can be failed to specify exactly what activities should be done over what period allocated and so fail to be a basis to determine payment for research program progress
- Threat of payment transaction to be used in the project purposes

**RISK:** Medium or Low

Proposed Actions to minimize risk factor:

This kind of risk is implicit in the capacity building effort. Only implementing the calls it will be possible to learn how to structure a future African Framework Programme to be launched under the partnership from 2010. Furthermore, the risk will be reduced by capitalising the yearly accumulated asset and using the support, knowledge and experience of the EC Staff

## **9. Implementation Arrangements**

The AMCOST Bureau has to endorse the whole proposed activity at its November 2008 meeting.

The AU - EU partnership has to reserve the financial support (estimated in 6 Millions € the first year, 12 the second and 18 the third) in order to be ready to launch the first call for December 2008.

A specific joint task force AUC-EC will follow the implementation of the project proposing the necessary adaptation and corrections in all sections: preparation of the call, launching, evaluation, contract

negotiation, contract implementation, and monitoring, reporting, capitalisation of the experience, modification and adaptation of the process, rules and procedures.

## **10. Monitoring and Evaluation**

It will be in line with procedures agreed between the AUC, the EC and the partners.



**CAPACITY BUILDING:  
AU – EU  
AFRICA RESEARCH GRANTS**

**Work Package  
of the  
First African call for proposals**

**Earth and Life Sciences**

**Published the 1<sup>st</sup> December 2008 with Deadline the 1<sup>st</sup> May 2009**

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## **Section I**

### **Call for proposals**

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## **CALL FOR PROPOSALS FOR "EU-AU AFRICA RESEARCH GRANTS - FIRST AFRICAN CALL FOR PROPOSALS ON SCIENTIFIC EXCELLENCE"**

### **I. OBJECTIVE AND DESCRIPTION**

In accordance with the AU-EU Agreement on Partnership of the 9<sup>th</sup> December 2007 and the related "First Action Plan (2008-2010) for the implementation of the AU-EU Strategic Partnership"; in agreement with the Africa's Science and Technology Consolidated Plan of Action (CPA) implementation strategy, the AMCOST Decision n° AU/ST/MIN/RECOM(III) of November 2007 and the African Union Assembly Declaration n° Assembly/AU/Decl.5(VIII) (January 2007) on Science Technology and Scientific Research for Development; the African Union Commission (AUC) launch a call for proposals related to the following scientific fields.

The concerned research institutions, having their headquarters in Africa, are invited to submit proposals for research and technological activities and accompanying measures, in the main two scientific fields: Earth and life sciences and Science, technology and innovations with different "Thematic Areas". Therefore, for each year, the scientific fields thus shared out:

The first year's call for proposal will be focused on Earth and life sciences and Science sector and includes all the scientific fields in this sector including: Post-harvest and Agriculture, Renewable and sustainable energy, and Water and sanitation.

The Second and the third year's calls for proposal will include the Earth and life sciences and Science, and the technology and innovations sectors and will include all scientific fields in these sectors including: Post-harvest and Agriculture, Renewable and sustainable energy, Water and sanitation, Material science, Nanotechnology, IT and artificial intelligence.

### **II. ELIGIBLE PROPOSERS and OFFER**

Proposals will be selected on the basis of the criteria set out in Section IV and mainly based on the scientific excellence, the strengthening of the African research capacity and their impact on the sustainable development. In addition, for each scientific field specific selection criteria will be used in the evaluation procedure.

Selected proposals will be the subject of contracts in accordance with the rules for participation and their results will be disseminated according to the principles established by the consortium proposer and approved by the HRST Department.

### **III. BUDGET and ADMINISTRATIVE COSTS**

For the 3 years, the total budget for the funding of all projects is estimated at € 36 millions. Otherwise for each year call for proposals, the total budget is at € 6 millions the first year, 12 millions the second year and 18 the last year. Research and technological projects will be supported by this Grant till a maximum of 75 % of the total budget requested for each project. Indeed, the financial assistance cannot exceed 75% of the total eligible costs.

For the accompanying measures as preparatory meetings, conferences, cooperative links and networks, exchange of data and scientific information, identifying regional gaps and priorities to integration of scientific fields, and contribution to scientific agendas, the financial participation may go up to 6 % of the costs of these measures.

### **IV. DEADLINE**

Proposals must be sent to the "African Union Commission – Department of Human Resources Science and Technology" at the address indicated at the end of this call, before the 01/05/09 at 17.00 hrs local time, as confirmed by the post marked or delivered electronically and confirmed by an automatic acknowledgement of receipt.

On the 31/03/09 + 1 at 12.00 hrs local time, the proposals will be officially registered and the call for proposals closed.

Nevertheless, Potential participants will be able to check, with the HRST Department Services, that their proposal is in accordance with the objectives of the Call and with the eligibility criteria, before formally submitting their proposal. This pre-checking service will close 15/04/09.

### **V. FURTHER INFORMATION**

Proposers must comply with the requirements set out in the full text and be submitted using the form provided. The whole information package with the Form to be filled is available upon request at the following address:

**African Union**  
**HRST-Department**  
**First Call for Proposals**  
**P.O. Box 3243**  
**Addis-Ababa, ETHIOPIA**

It can be downloaded at the following web site [www.africa-union.org](http://www.africa-union.org), or requested to the following e-mail address (info.call.hrst@africa-union.org, or by fax at +251.115.50.59.28

Proposals for research or accompanying actions and any correspondence should be sent to by:

Normal mail to

African Union Commission  
Dr. Hakim Elwaer – Director  
Human Resources Science and Technology  
First Call for Proposals  
P.O. Box 3243  
Addis-Ababa - Ethiopia

Electronically:

First.Call.hrst@Africa-Union.org

By fax:

To the attention of :  
Dr. Hakim Elwaer – Director  
Human Resources Science and Technology  
First Call for Proposals  
Fax: +251.115.50.59.28

The present call will be prepared in the four AU Official languages and disseminated to the Scientific and Academic African Institutions, the RECs, the AU Member States, published in the AU Official Website, the AU news Bulletin and in the four major African newspapers (one for each language). Moreover, the popularization of this call for proposals will be made by a Press release.

## **Section II**

### **Technical Guidelines**

**Technical Guidelines for the first call for proposals  
under the  
Capacity Building AU-EU Africa Research Grants**

**Call launched the 01/12/2008 with Deadline the 01/05/2009**

### **1 – Mission statement**

The overall mission of the first call for proposals can be characterised by the following aims:

1. To improve and facilitate researches and networking between African researchers, including those belonging to the African intellectual Diaspora, and the wider international community in the scientific fields as defined by the thematic areas;
2. To develop a framework of research activities responding to the criteria of the Africa sustainable development, this implies that each proposal have to figurate its impact/ relations with the environment, the society and the economic context;
3. To improve the flow and exchange of information on the thematic areas with a particular emphasis on the relevance and value of research investment to African policy, society and economic activity;
4. To provide a focal point for African collaboration with complementary international programmes
5. To create a research environment responding to the acknowledgment of the role, functions and activities of the African researchers and scientists in their own continent.

In pursuit of this mission, the African Grants seek to add value to activities already underway in the AU and its Member States, through increasing synergy at all levels. This involves both actions by the AU Commission Services and also research projects initiated and undertaken by external partners in response to the Call for Proposals.

6. This first call will be launched in December 01st 2008, with deadline in May 01<sup>st</sup> 2009. Evaluation of the proposals will be implemented in the following four months, using panel of external African and International experts not involved in the proposals. The results of the evaluation and the list of the proposals to be retained will be submitted to the attention of the AMCOST Bureau. Immediately after, the AU-HRST Services will initiate the contract negotiation and, once defined, the contract will be officially signed by the proposers' coordinator as main contractor and by the HRST Dpt Director. The contract Coordinator will receive an advance of 35% of the planned contribution and will continue to receive tranches of funding according to the presented reports and cost statements.

### **2 – Legal and Institutional Basis for the First Call for Proposals**

Partnership Agreement

Plan of Action

AMCOST Decisions

Funds available for each topic

Limitation of contribution only to African Partners (including the Diaspora), all other international participants are more than welcomed but they may not receive funds by this Grant.

Total budget for each year Call for proposals: €12 millions (in average, €2 Millions for each scientific field): the first call will manage a total of six millions of Euros (the second call 12, and the third 18).

The contribution will cover also the cost of implementation estimated at 6% of the whole envelope.

### **3- Thematic issues and focus of the Proposals**

The first call will focus on Earth and Life Sciences including the three thematic areas which respond to local needs and significant issues of importance to Africa (Post-harvest and Agriculture, Renewable and sustainable energy, and Water and sanitation).

## **Section III**

### **Thematic areas**

## Introduction

The first call of the AU - EU Africa research Granting Program is open for project proposals from developing African country scientists who meet the eligibility criteria and conduct research in the field of Earth and life sciences mainly focusing on Agriculture, Energy, and Water and sanitation.

Detailed specifications on all research topics qualifying for AU - EU Africa research support will not be presented here, as that might exclude important research areas identified by the researchers themselves.

However, essentially, in order to fall within the scientific scope of the AU - EU Africa partnerships mission statement, the project should be related to the Earth and life sciences sector including agriculture, energy and/ or water resource base.

Some scientific thematic are detailed in the following:

### a) **Post-harvest and Agriculture**

Research projects may address the following issues:

- **Food security and productivity: focusing on processing, improvement of quality of agricultural produce, agro-forestry, cereals, root/tuber crops, food legumes**

Research projects may address issues such as transfer of new and innovative technologies: technologies on cereals (maize, rice, sorghum, millet); leguminous crops (groundnut and cowpea); tuber crops (cassava, yam and potato); forestry and agro-forestry system; cash crops (cotton, cocoa, coffee, oil palm)., transfer of post-harvest processing technologies and value adding to agricultural produce.

- **Crop-livestock integration**

Research projects will address issues such as transfer of new innovative technologies on small and large ruminants (sheep, goat and cattle); poultry.

- **Agricultural policy and commercialization, marketing of agricultural produce**

Research projects must demonstrate capacity for high economic returns and significant impact on stakeholders groups.

Priority will be given to projects that foster collaborations of highest regional/national importance. Research projects judged to be of highest quality and most likely to produce results that are relevant to the needs of the African agricultural stakeholders will be funded.

### b) **Renewable and sustainable energy**

Research projects may address the following issues:

- **Sustainable energy at a local and regional level**

Research projects will address start-up or demonstration projects on sustainable energy issues that could be successfully operating in the community.

- **Renewable energy use and its impact on the environment**

Research projects will be demonstrable benefits to the environment and shows an evidence of renewable energy use and the energy generated or saved, greenhouse gas emissions reduced and benefits to the local environment.

- **Innovative approach to Renewable and sustainable energy**

Research projects will use established renewable energy systems technologies (such as solar photovoltaic systems, solar hot water systems, wind energy systems, geothermal systems or biomass energy systems) and advanced energy efficiency, conservation and facilities to energy control. These projects must be innovative aspects to the scheme as a whole. These could include using novel approaches to marketing; better financing schemes; technical developments; training and skills development.

- **Measures for making sustainable energy more widespread.**

Research projects may support new sustainable energy products, energy efficiency products technologies and services at local and regional levels that are not already widely available on a commercial basis.

**c) Water and sanitation**

Research projects may address the following issues:

- **Water for livelihood**

Research issues related to safe drinking water, Sustainable sanitation, Pollution abatement, and water treatment. These projects may address issues on new water sources, pollution of drinking water, reduction of impact on freshwater resources, identification and description of polluting activities and pollution sources, ways to reduce polluting effluents, waste -water and effluent collection, and characterization, development of water treatment techniques, development of strategies waste-water and sludge reuse

- **Water for agriculture**

Research issues related to water for agriculture which may address issues on development of the on-site rainfed agriculture and rainfall harvesting methods, reducing evaporation from soil and water surfaces through appropriate land management, use of low-quality irrigation water and irrigation technologies

- **Social and economic dimensions of water resources management**

Eligible research topics will be related to the social and economical issues and management issues that are directly relevant to the sustainable management of water resources. These might include research on sustainable solutions to conflicts over access to water resources, as well as research on the production and transfer of knowledge for sustainable water management.

**d) Other grants**

The AU - EU Africa research Granting Program reserves the right to accept grant proposals for work of compelling interest and value that strongly advances the program's mission of promoting all scientific topics in relation to Earth and life sciences sector which responds to local needs and that has significant issues of importance to the African region.

## **Section IV**

### **Evaluation procedure and Criteria**

# Evaluation Procedure and Criteria

## Evaluation Procedure

In order to qualify for evaluation proposals must be properly completed and submitted within proper time. Proposals must also conform to the scope and objectives described in the Call, and have proper transnational collaboration including partners from at least three African Union Member States with a specific added value for AU Member States of different AU Regional Economic Communities (RECs).

The African Union Commission (AUC) will ensure a confidential, fair and equitable evaluation of all proposals. This evaluation will have due regard to the criteria and guidelines set out in this section. The evaluation will be carried out by independent experts chosen by the AUC which will assure also their responsibility and coordination.

The evaluation and selection of proposals will proceed as follows:

- Verification of the proposal eligibility by the AUC-HRST staff;
- Confidential evaluation of the proposals by independent scientific experts (constraint to rotation);
- Initial ranking of proposals by the AUC-HRST staff upon indication by the experts for the preparation of a draft shortlist of the proposals to fund;
- Examination of the evaluation process, a discussion on the results and the provision of an opinion on the shortlist by the Advisory Management Committee (permanent body) composed by scientific and research experts of the five African regions;
- Final selection by the AUC-HRST department and presentation of shortlisted retained proposals to the AMCOST Bureau for approval;
- Communication of the results of the evaluation and funding decision to the proposal coordinators by the HRST Department Director.

This full procedure will take approximately six months to be completed starting from the deadline of proposal presentation.

## Evaluation Criteria

All proposals must meet the eligibility and general criteria here briefly illustrated.

### Eligibility Criteria

The proposals have to arrive within the deadlines indicated in the call for proposals;

- The Proposal should be inline with the Africa's Science and Technology consolidated plan of Action (CPA);
- The consortia have to respect the minimum of participant institutions: at least 3 of different AU Member States, added value will be provided to those proposals having partners of different AU-RECs;
- Partners of other countries out of Africa and international organizations are more than welcomed but they have to be considered in addition to the 3 African research institutions;
- All the partners involved in the proposal have either to sign the proposal or to clearly manifest their will to be fully proposal partners (specific letter or e-mail of interest); any false declaration will be reason of exclusion;

- Only African Countries are entitled to receive funds by the AUC, all other partners have to cover the costs of their own participation in the project;
- The proposal may be also participation of African science and research institutions to existing International or European research projects but the condition of 3 African Partners have to be maintained;
- Completeness of the proposal with the detailed administrative information for each partner and institution (the eligibility checks only apply to the presence of the appropriate parts of the proposal, the completeness of the information in the proposal description will be for the expert evaluators to judge);
- 30% of the budget has to be supported by the partner institutions, it may cover salaries, recurrent and other general costs;
- The total amount of requested contribution cannot exceed in average 100,000 € / year .

The decision to exclude a proposal failing eligibility criteria will be taken by the AUC-HRST department normally at the same time as the decision to reject proposals which are out of scope. The proposal proposers of ineligible proposals will be informed immediately after the AUC-HRST Dpt decision.

General Criteria (to be evaluated by independent anonymous experts)

- a. Scientific and technical excellence of the proposal
  - Quality of the research proposed and its contribution to the objectives of the call (see also Section II and III): clarity and credibility of the project aims and objectives;
  - Degree of innovation and progress of the state of the art; degree of originality and innovation, linked with the degree of interdisciplinarity and integration;
  - Adequacy of scientific/technical rationale and of the chosen approach, methodology for achieving the scientific and technological objectives; clarity and adequacy of the work plan;
  - The scientific, technical and economic benefits with credible and well defined deliverables, issues and results.
- b. African Union dimension (minimum three partners from 3 different AU State Members, added value will be provided to those proposals having partners of different RECs) to be evaluated in particular also by the Permanent Advisory Committee.
  - The African dimension and added value of the proposal
  - The African added value of the consortium
  - Widening the African scientific / technical expertise
  - Reference and contribution to one or more African Union policies or priorities
- c. Contribution to social objectives
  - Improving the quality of life, health and safety
  - Improving employment prospects and development of skills in Africa
  - Preserving and enhancing the environment and the minimum use conservation of natural resources
- d. Potential exploitation of the results/outputs
  - Usefulness and range of applications and quality of the exploitation plans
  - Strategic impact of the proposed activity and its potential the development of market applications for research partners and result users
  - Dissemination strategies for the expected results

e. Quality of the management

- Quality of the project management and research approach
- Technical and/scientific competence of the partnership involved
- Appropriateness of the resources planning and budget (manpower, durables, consumables, travel expenses ...). No cars and no infrastructures will be considered eligible costs. Laboratory equipment and other tools for research may be covered by the project budget. Computers devices costs will be allowed upon specific recommendations of the expert evaluation panel.

## **Section V**

### **How to fill in a proposal form**

**Writing a proposal:**

The text has to be written in "Word", using the font "Times New Roman" with 12 characters. If sent electronically has not to be "Zipped".

If sent by normal mail has to be sent in one original plus five copies.

It should avoid using acronyms and the texts have to be succinct providing the element for understanding the research actions.

**Participation:**

Particular attention has to be provided to the description of African union partners and participants by other Countries. The role and activities of each one has to be clearly explained. The Consortium composition has to respect the rules of participation.

**Funding Possibility by the AUC:**

All requested complementary sources of funding have to be clearly indicated and verifiable. It will be not accepted that the requested African contribution be covered via other international funds. The research project that will receive direct contribution from the public budget of one African Country, will be considered positively (added value) at the evaluation phases.

**Contract:**

Negotiation of the contracts will be guided by the AUC-HRST officers.

The contract form, among others, will contain: role and responsibilities of the project responsible and of the partners; technical annexes with detailed description of the research activities; form of payments; eligible costs; number and sections of the reports; ownership-utilisation and exploitation of the results.

**Submission language:**

For the first call, the applicants are requested to submit their requests either in English or in French languages (according to the work languages decided by the consortium participants), in the future all the African Union working languages will be considered.

**Contacts:**

For further information, you may address your questions and requests to:

Mrs

E-mail:

Tel.

Fax:

Mr

E-mail:

Tel.

Fax:

Human Resources Science and Technology  
First Call for Proposals  
P.O. Box 3243  
Addis Ababa - Ethiopia

## **Section VI**

### **Proposal Form**



## Proposal Form

### **AU – EU AFRICA RESEARCH GRANTS** **First African call for proposals on scientific excellence**

### **Earth and Life Sciences**

Published the 1<sup>st</sup> December 2008 with Deadline the 1<sup>st</sup> May 2009

**Title of the proposal:**

**Acronym :**

**Scientific field:**

**To be returned to:**

Normal mail to

African Union Commission  
Dr. Hakim Elwaer – Director  
Human Resources Science and Technology  
First Call for Proposals  
P.O. Box 3243  
Addis Ababa - Ethiopia

Electronically:

First.Call.hrst@Africa-Unio.org

By fax:

To the attention of :  
Dr. Hakim Elwaer – Director  
Human Resources Science and Technology  
First Call for Proposals  
Fax n. : +.251. 7777777777

<b>Participating Countries:</b> (minimum 3 different AU countries)	
Country coordinating the project	
Other Partner countries	

<b>Estimated duration of the Project:</b> .....Months	
Funding requested from AU.....EUR	
Contribution funding of the partner AU countries:	.....EUR (about 30% of the total budget)
<b>TOTAL:</b>	.....EUR

**PART 1 - GENERAL INFORMATION**

**1.1 Principal Participants: Partner country Project coordinator** (Brief CV (not more than one page) should be provided for each country Project coordinator - attached format is compulsory)

(a) Project Director

SURNAME/First name/Title	Job Title, Institute and Address	Country	Telephone, Fax and E-mail
Date of Birth (dd/mm/yy):			

(b) Project country coordinator

SURNAME/First name/Title	Job Title, Institute and Address	Country	Telephone, Fax and E-mail
Date of Birth (dd/mm/yy):			

SURNAME/First name/Title	Job Title, Institute and Address	Country	Telephone, Fax and E-mail
Date of Birth (dd/mm/yy):			

**1.2 Other Principal partners from countries outside the African continent:** (Brief CV (not more than one page) should be provided for each international partner - attached format is compulsory)

(a) Project Participant :

SURNAME/First name/Title	Job Title, Institute and Address	Country	Telephone, Fax and E-mail
Date of Birth (dd/mm/yy):			

---

SURNAME/First name/Title	Job Title, Institute and Address	Country	Telephone, Fax and E-mail
Date of Birth (dd/mm/yy):			

**PART 2 - PROJECT INFORMATION**

---

**2.1 Objectives** – List the main objectives of the research and of the project overall. Explain the relevance to the call aim

---

**2.2 State of the Art of the research topic**

**2.3 Description of the Project** - a description of the project and the activities to be carried out.

---

## **2.4 Justification**

(a) Reasons why the research is needed, together with an overview of the results expected at the end of the project.

(b) Indicate how the results of the project will contribute to improved social and economic wellbeing and develop scientific capacity in Science & Technology and innovation in the African countries

(c) Describe the innovative aspects of the project

---

## **2.5 Organisation of the Project and methodology**

Describe the role of each of the project partner.

---

## **2.6 Implementation of the Results**

(What measures will be taken to ensure the implementation of the results of the project)

---

**PART 3 - BUDGETARY INFORMATION** (All figures should be expressed in EURO)

---

**3.1 Support Requested for Institutes in Partner countries**

	(1)	(2)	(3)	(4)	<b>Total (EUR)</b>
<i>Country(**):</i>					
<i>Institute(**):</i>					
Equipment (including computers)					
Project-related travel					
Training (including related travel)					
Project-specific consumables					
Other					
<b>Total (EURO)</b>					

(\*\*) *Insert the names of the participating countries and institutes at the top of columns 1-4 as appropriate.*

**3.2 Equipment** - Provide a list of major items of equipment and the estimated cost of each item.

**3.3 African Country National Contribution - Provide details of each African** country's national contribution in cash and in kind to the project, including a list of major research and other facilities that will be used during the course of the project.

## Project country director Brief Curriculum Vitae

**SURNAME**

**FIRST NAME(S)**

*(Please ensure that in writing names the same spelling is used throughout the application)*

**TITLE**

**Affiliation and official address**

**Telephone**

**Fax**

**E-Mail**

**Date and place of birth**

**Nationality**

**Education** (*degrees, dates, universities*)

**Career/Employment** (*employers, positions and dates*)

**Fields of Specialisation**

(i) **main field**

(ii) **other fields**

**Current research activities** (*Title of activities. In the case of international collaborative activities, please give the name(s) and institution(s) of your collaborator(s)*)

**Honours, Awards, Fellowships, Membership of Professional Societies**

**Publications -**

**Total number of SCI publication\***

**Total number of publications published in the G8 countries 9in Non SCI journals)\***

**Total Number of other publication\***

**Please list up to three of your most recent publications relevant to the project purposes.**

1.

2.

3.

\* N.B. the abstract of this publication should be submitted upon request.

## **Project country coordinator Brief Curriculum Vitae**

**SURNAME**

**FIRST NAME(S)**

*(Please ensure that in writing names the same spelling is used throughout the application)*

**TITLE**

**Affiliation and official address**

**Telephone**

**Fax**

**E-Mail**

**Date and place of birth**

**Nationality**

**Education** (*degrees, dates, universities*)

**Career/Employment** (*employers, positions and dates*)

**Fields of Specialisation**

(i) **main field**

(ii) **other fields**

**Current research activities** (*Title of activities. In the case of international collaborative activities, please give the name(s) and institution(s) of your collaborator(s)*)

**Honours, Awards, Fellowships, Membership of Professional Societies**

**Publications -**

**Total number of SCI publication\***

**Total number of publications published in the G8 countries 9 in Non SCI journals)\***

**Total Number of other publication\***

**Please list up to three of your most recent publications relevant to the project purposes.**

1.

2.

3.

\* N.B. the abstract of this publication should be submitted upon request.

## **Project country coordinator Brief Curriculum Vitae**

**SURNAME**

**FIRST NAME(S)**

*(Please ensure that in writing names the same spelling is used throughout the application)*

**TITLE**

**Affiliation and official address**

**Telephone**

**Fax**

**E-Mail**

**Date and place of birth**

**Nationality**

**Education** (*degrees, dates, universities*)

**Career/Employment** (*employers, positions and dates*)

**Fields of Specialisation**

(i) **main field**

(ii) **other fields**

**Current research activities** (*Title of activities. In the case of international collaborative activities, please give the name(s) and institution(s) of your collaborator(s)*)

**Honours, Awards, Fellowships, Membership of Professional Societies**

**Publications -**

**Total number of SCI publication\***

**Total number of publications published in the G8 countries 9in Non SCI journals)\***

**Total Number of other publication\***

**Please list up to three of your most recent publications relevant to the project purposes.**

1.

2.

3.

\* **N.B. the abstract of this publication should be submitted upon request.**

## **Project participant from country out of africa Brief Curriculum Vitae**

**SURNAME**

**FIRST NAME(S)**

*(Please ensure that in writing names the same spelling is used throughout the application)*

**TITLE**

**Affiliation and official address**

**Telephone**

**Fax**

**E-Mail**

**Date and place of birth**

**Nationality**

**Education** (*degrees, dates, universities*)

**Career/Employment** (*employers, positions and dates*)

**Fields of Specialisation**

(i) **main field**

(ii) **other fields**

**Current research activities** (*Title of activities. In the case of international collaborative activities with African countries please give the name(s) and institution(s) of your collaborator(s)*)

**Honours, Awards, Fellowships, Membership of Professional Societies**

**Publications -**

**Total number of SCI publication\***

**Total number of publications published in the G8 countries 9in Non SCI journals)\***

**Total Number of other publication\***

**Please list up to three of your most recent publications relevant to the project purposes.**

**1.**

**2.**

**3.**

**\* N.B. the abstract of this publication should be submitted upon request.**

## **Section 2: Popularization of Science & Technology**

### **Project**

Popularization of science and technology and promotion  
of public participation



**POPULARIZATION OF  
SCIENCE AND TECHNOLOGY  
AND  
PROMOTION OF PUBLIC  
PARTICIPATION**

# POPULARIZATION OF SCIENCE AND TECHNOLOGY AND PROMOTION OF PUBLIC PARTICIPATION

## 1. Background

Annex 2, part (d) of Africa's Science and Technology Consolidated Plan of Action (CPA) calls for the Commission to implement a project on "Promotion of public Understanding of Science and technology". In recognition of the dynamic relationship between R&D on the one hand and the use of the products of research on the other, the Department Human Resources Science and Technology (HRST Dpt) proposes within the provisions of the CPA to promote public understanding of science and technology and to develop African constituencies for S&T which R&D programmes will take into account.

The African Union has considered research as an important instrument for reconciling the African research world with the construction of an African Continent in line with the world challenges as defined in the MDGs and the concept and principles of the sustainable development. In this framework the African Scientific Merit Awards aim at encouraging and promoting creative talents among African citizens in science, invention, research and innovation with a view to address socio-economic-environmental sustainable progress of Africa. At the same the prizes to African outstanding scientists - on national, regional and continental levels - will provide the examples for the new generations of students and researchers, giving a particular impulse to reduce the intellectual Diaspora.

Already different scientific prizes exist in Africa. Only as an example, it is possible to mention those related to agriculture as the "Women Science Competition" and the "Young Professionals Competition", with the aim to select the top researchers for improving Agricultural Performances in Sub Sahara Africa (prizes given jointly by: CTA, African Technology Policy Study Network, FARA, Nepad, RUFORUM). Despite it, in Africa the relationship between the public and R&D is weak and often public opinion is ignored by science sectors and vice versa. Until the African public and politicians will not agree on the benefits of science, improved investments in science and technology will remain an illusive dream. An improved public understanding of science will also yield an increased number of students taking up science and technology careers. Furthermore, each AU State Member has not a National Academy of Science and in some countries also if it exists is not particularly active. The AUC considers the African Academy of Science as the Regional and National ones as the privileged interlocutors for the actions related to Science dissemination and popularisation.

Time is arrived also for African public, politicians, practitioners and professionals to acknowledge the relevance, role and action of the African scientists via a scientific prize offered by the AU - EU partnership on science and technology. This process has to be accompanied by a parallel action towards politicians and academic world. Science has to become the main engine for the sustainable growth and development of the African Continent.

The African Union Commission, through its Department of Human Resources, Science and Technology (HRST) has planned a number of activities for public understanding and participation to raise awareness and to build up a scientific culture among the African citizens through two specific actions: a) Popularisation and Promotion of Science and Technology; b) Promotion of Public Understanding and Participation in Science and Technology.

## 2. Project Description

### **(a) Popularisation and Promotion of Science and Technology in the AU Member States**

In order that science and technology take-off in Africa, the AU Commission has to initiate comprehensive and sustainable outreach actions to raise public awareness on the importance and relevance of science and technology for the Africa sustainable development.

The African Scientific Merit Awards will focus two principal and broad scientific fields namely:

a) Earth and Life Sciences and, b) Science and Technology and Innovation.

Under this framework the following awards will be allocated:

- (i) The National Young Scientist Award
- (ii) The Regional Women Scientists Award
- (iii) The Continental African Scientist Award

Furthermore the following actions will be implemented for raising the importance of S&T among the public and the media:

- (iv) African Science and Technology Day (in previous years it was named "Africa's Scientific Renaissance Day"): the 30th of June of every year is the African Union significant and memorable day on Science and Technology, to be observed and celebrated in all AU Member States.
- (v) The HRSD Dpt will launch a Media Communication Action for the popularisation of Science and Technology in Africa involving all media and aiming at: a) creating specific media for S&T vulgarisation programmes especially for women and young generations (TV Shows, documentaries, cartoons, books, CDs, articles, ...); and b) a regular programme of Capacity building on scientific journalism, allowing the creation of a nucleus of professional journalists (in each AU State Members) particularly sensible and trained in scientific communication.
- (vi) An improved public understanding of science will yield an increased number of African citizens (women and youth) taking up science and technology careers.

### **(b) Promotion of Public Participation in Science and technology**

The AU Commission has already initiated two main actions to provide a decision makers platform for Africa. These actors take advantage of African existing science and technology and explore what should be recommended to fully exploit in the future the accumulated S&T asset for the African development.

The main actors will be convened via biannual meetings:

- (i) Enhanced role of the African Academy of Science, creation of new National and Regional Academy of Sciences and strengthening of those already existing.
- (ii) The Pan-African Parliament Workshop on Science and Technology.

It is envisaged that these two actions will feed also the formulation and review of continental, regional and national policy and programmes in science and technology with a view to optimise the utilisation of human, natural, infrastructure and institutional resources.

## 3. Timeframe:

Estimated Duration	4 years	Planned Start	2009
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#### 4. Objectives

##### Overall Goal:

###### *Description of overall goal*

To build public understanding and raising awareness on science and technology as a driving agent for social and economic progress for Africa and regional integration, via: The African Scientific Merit Awards; the solicitation of the media, the Congress of Scientists and Policymakers, and the Pan –African Parliament on S&T actions.

##### Objectives in detail:

1	Allocation of a <b>National</b> Young Scientist Award: is designed to raise the profile of science and technology sector in AU Member States, targeting the young emerging scientists and creating a competitive scientific culture.
2	Allocation of a <b>Regional</b> Women Scientists is designed to raise the profile of science and technology sector in AU Regional Economic Communities (RECs), targeting the women scientists and thereby creating awareness of the role of women in science and technology.
3	Allocation of a <b>Continental</b> African Scientist Award is designed to raise the profile of science and technology sector in Africa and to create awareness and a competitive scientific culture.
4	Raising the importance of S&T among the public through the African Science and Technology <b>Day</b> : the 30th of June of every year has to become the reference day for S&T in all AU State Members and in the Whole African Continent (the prizes mentioned in the previous points should be possibly and officially given in this day).
5	Raising the importance of S&T among the <b>Media</b> Communication Action: a) Creation of specific media activities for S&T vulgarisation: at least one TV programme par each AU State Member; more a series of 10 articles/ State Member/ year for women and young generations in newspapers; b) Capacity building of scientific journalism: specific training of 2 journalist/State Member for creating an African Network of scientific culture and communication.
6	Creating the National and Regional Academy of Sciences and strengthen those already existing in the AU State Members by the HRST department with collaboration of the African <b>Academy of Science</b>
7	Promoting the public participation in policy and programme formulation through the <b>Pan-African Parliament Workshop</b> on Science and technology. This will be conducted every two years and each African Parliament will be represented at least with one participant and one scientist from each AU State Member.

#### 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost USD (\$)
1	2 National Young Scientist Awards, for each AU State Member in the field of <u>Earth and Life Sciences</u> and <u>Science and Technology and Innovation</u> (one prize for each field).	Two Young emerging scientists / researchers of less of 35 years old will be awarded a USD 5,000 as Merit at National Level for their best scientific work. Each Member State will independently run the award competition through their competent authorities. The AUC will disburse the funds and receive a report by each AU National Scientific Awards Competition Committee to be created in each AU State Member. (5000x2x53= 530.000 USD/Year)	1	2.120.000
2	The Regional Women Scientists Awards in the field of <u>Earth and Life Sciences</u> and <u>Science and Technology and Innovation</u> (one prize for each field).	Excelling women scientists (without reference to age) whose work impact on the community live in the five regions will be warded 20,000 USD (20,000 x 2 Candidates x 5 AU Regions= 200.000 USD/Year)	1	800.000
3	The Continental African Scientist Awards in the field of <u>Earth and Life Sciences</u> and <u>Science and Technology and Innovation</u> (one prize for each field).	This is an open award given to two top scientists at continental level (without reference to sex or age) in the two fields selected. Two candidates will be considered in this category making the total cost of 200,000 USD/year.	1	800,000
4	African Science and Technology Day: the 30th of June of every year has to become the reference day for S&T in all AU State Members, RECs and in the whole African Continent (the prizes mentioned in the previous points should be possibly and officially given in this day).	Preparation of dissemination material (booklet, CDs; ...), information kit for TVs, radios and newspapers. Ceremony of the Consign of the Prises at Continental level Estimation of 60.000 USD/Year	1	240.000

5	<p>Media Communication Action for the popularisation of Science &amp; Technology in Africa:</p> <p>a) Creation of specific media activities for S&amp;T vulgarisation:</p> <p>b) Capacity building of scientific journalism: in total 106 journalists during the 4 year of the project</p>	<p>a) at least one TV programme par each AU State Member; more a series of 10 articles/ State Member/ year for women and young generations in newspapers; it will involve also regional workshops. Estimation: 70.000 USD/Year = 280.000</p> <p>b) specific training of 2 journalist/State Member for creating an African Network of scientific culture and communication. The programme will cover the 53 AU State Members during /4 years: 550.000 USD</p>	1	830.000
6	Specific action for women and young generation	<p>Preparation of special information/ communication material (books and papers) adapted to African women and youth at high school level to facilitate the understanding of science and technology careers. Estimated to 180.000 USD. Creation of specific communication modules (audiovisual) to be adapted and put at the disposal of each AU Member State Education Ministry Estimated to 260.000</p>	2	440.000
7	Strengthening the role and presence of the African Academy of Science (AAS), creation of National and Regional Academy of Sciences and strengthening of those existing already.	<p>The HRST jointly with the AAS will identify the existing national academy of sciences in the AU State Members. A plan of actions will be established in order to strengthen the activities of the existing ones and the creation of new ones at African Regional and National level. The Academy of sciences of the different African countries will constitute a network in conjunction with the AUC to enable Africa to building public understating and participation in its science and technology programmes (policy and R&amp;D programmes). The academies of sciences will play a specific role in the attribution of the scientific prizes and in the evaluation of research proposal for the AUC-HRST Department.</p>	2	600,000

8	Pan-African Parliament Workshop on Science and technology (in 2010 and 2012)	This is a biennial advocacy programme aimed at involving Africa's politicians, to identify their role such as public acknowledgement of science and technology in socio-economic development, lobby for improved investment in science and technology	1	300,000
		Subtotal:		
9	Administration Cost *	Administrative and overhead costs for running the Awards Competitions estimation of 7,5 % of the total costs.		450.000
		<b>TOTAL COST USD :</b>		<b>\$ 6.580.000</b>
		<b>(Total cost in Euro</b>		<b>€ 4.500.000</b>

\* Temporary contracts and salaries according to the AUC rates.

## 6. Expected results

At the end of the 4 years of the project:

### a) **Allocation of the National Young Scientist Award**

424 Awards to National Young Scientist divided into 212 awards in the field of Earth and Life Sciences and 212 awards in Science and Technology and Innovation

### b) **Allocation of the Regional Women Scientists**

40 Awards to the Best Regional Women Scientists divided into 20 awards in the field of Earth and Life Sciences and 20 awards in the field of the Science and Technology and Innovation

### c) **Allocation of the Continental African Scientist Award**

8 Awards to the Continental African Scientist divided into 4 awards in the field of Earth and Life Sciences and 4 awards in the field of Science and Technology and Innovation (one prize for each field).

**d) Organisation of the African Science and Technology Day:** The 30th of June of every year will become the reference day for S&T in all AU State Members, RECs and in the whole African Continent. 4 days with Ceremony of attribution of the awards at continental level (at the presence of both AU and EU Commissioners); 20 ceremonies at RECs level with the presence of representatives of AU and EU Services; 53 Ceremonies at National level at the presence of the national authorities, EC delegation Representatives and AUC Officials.

It will be strong media coverage and all African Universities will be solicited to make special events on these days at the presence of EU scientific and academic representatives.

- e) **Media Communication Action for the popularisation of Science & Technology in Africa:**
- 1) Creation of specific media activities for S&T vulgarisation: at least 50 TV shows or programme; more a series of 2000 articles for women and young generations in newspapers; 10 regional workshops on scientific communication.
  - 2) Capacity building of scientific journalism: in total 106 journalists during the 4 year of the project, creation of an informal network of journalist.
- f) **Specific action for women and young generation:** adapted information kits to be disseminated at least in 3 high schools of 3 different towns in each AU State Member.
- g) **Strengthening the role and presence of the African Academies of Science:** with the help of the AAS, the HRST will facilitate the creation of National and Regional Academy of Sciences and will strengthen those existing already. At the end of the project each AU State Member will have a National Academy of Science or a specific Award Committee.
- h) **Organisation of a Two Pan-African Parliament Workshop on Science and technology in 2010 and 2012:** publication of proceedings, with recommendations and indication of the related action to follow up.

## 7. Performance Indicators at level of the AUC Research Grant Programme

### Indicator 1:

Number of AU Member States fully participating in S&T programmes at National, Regional and Continental Levels.

### Indicator 2:

Number of ceremonies covered by media on the Awards; number of articles in newspapers, documentaries in TV, interviews in TV and Radio.

### Indicator 3:

Percentage of increased investment in S&T as the public and politicians acknowledge the role of S&T in socio-economic development, and PIB % allocated to S&T in each AU State Member.

### Indicator 4:

Evolution of the Rates/ number of students at the Universities taking up science as a career and profession.

### Indicator 5:

Number of Academy of Sciences existing in each AU Country and in each RECs.

## 8. Risk Factors and Mitigation Measures

### 1. Sustainability of the funding mechanisms

There is need to sustain the programme but allocating a permanent yearly budget for this event.

**RISK:** High,

Proposed Actions to minimize risk factor:

There is a need to study the possibility of funding this project through an investment fund. Furthermore, the African Member States will increase progressively the allocation of specific funds. The AU Member State contribution should increase from 25% of the first year till 75 % at the end of the 4 years. The acquired new funds should allow continuing the prosecution of the planned activities after the 4<sup>th</sup> year. The EU request fund should consolidate the different prizes and media mechanisms in order to maintain the certainty of the continuity during the first 4 years and in parallel the AU State members should allow the creation of the special fund for maintaining the actions in the long term.

## 2. Weak Response from the Stakeholders (Member States and the RECs)

Experience has shown that there is a very weak response to this programme implying that outreach programmes in science and technology are not gaining enough footholds.

**RISK:** Medium

Proposed Actions to minimize risk factor:

Need to disseminate information directly to the concerned stakeholders on time using all official channels and engage the media to assist. The award has to be broad enough to attract more participation of Member States and this is considered in this programme.

## 3. Participation of all stakeholders with permanent communication structures of the chief stakeholders.

There is need to establish permanent communication desks and Award Committees in each Member State and RECs. The Award Committee will be managed by the African Academy of Sciences, if existing, at AU State Member level, at RECs and AAS level.

**RISK:** Medium

Proposed Actions to minimize risk factor:

The RECs and Member States are encouraged to establish Science and Technology Desks/Focal Points and to actively participate in this programme. The focal points should be within the structures of the African Academy of Sciences at National, Regional and AAS level.

The HRST Department have to assure the Continental level and organise the necessary ceremony for the 30<sup>th</sup> of June of each year. The EU RTD Commissioner will chair the ceremony jointly with the AUC HRST Commissioner.

## 9. Implementation Arrangements

The African Union Commission through the Department of Human Resources, Science and Technology implements this programme through its annual business plans.

A specific secretariat to follow and implement all the actions will be recruited at the HRST Department (cost of salary included in the 7.5 % of the Administrative costs). It will be composed by 3 secretaries, one financial and one ITC assistant.

A specific AWARD Committee will be named by the AMCOST upon proposal by the AUC HRST Commissioner. The Committee will establish every year the guidelines and criteria for

all awards (continental, Regional and National ones). In the Committee will seat, without rights of veto, one representative of the AUC-HRST Dpt and one of the EC-RTD Services.

## **10. Monitoring and Evaluation**

Through appropriate reporting mechanisms the Commission will be able to evaluate the impact and progress of this project.

## **Section 3: Capacity Building in S&T at African Level**

### **Projects**

1. Development of a Common African Union Science and Technology Policy Framework
2. Science and technology for the development of African Small Medium Enterprises and Support Business Incubator Networks
3. Securing and Using Africa's Indigenous and Traditional Knowledge
4. Pan African Intellectual Propriety Organization (PAIPO)
5. African Observatory of Science, Technology, and Innovation (AOSTI), and Policy Development



# **DEVELOPMENT OF A COMMON AFRICAN UNION SCIENCE AND TECHNOLOGY POLICY FRAMEWORK**

**Jointly with**



United Nations  
Educational, Scientific and  
Cultural Organization



# DEVELOPMENT OF A COMMON AFRICAN UNION SCIENCE AND TECHNOLOGY POLICY FRAMEWORK

## 1. Background

The mandate of the Division of Science, Technology and ICT within the Department of Human Resources Science and Technology is to facilitate and support the development and harmonization of Science, Technology and ICT policies, for Africa's socio-economic development. These policies enhance the regional integration process through programmes and activities that are perceived by Member States as reflective of their priority socio-economic developmental objectives and political stability.

Recently there are several reports that indicate the absence of Science and Technology policies in some of the AU Member States while others are not implementing the policy they had. Also the reports show the presence of Science and Technology gap between the African Regions.

In these contacts the Science and Technology policy programme will dig-down to identify the reasons that Africa are lagging behind the other developing counters and to find out the way for using Science and Technology as development engine for the Member States to achieve the Millennium Development Goals. The proposed program is also seeking to investigate the presence of Science and Technology policies in the Member States and to evaluate them and finally to produce an optimum Science and Technology policy framework that will lead to the Africa's Socio-economic development via Science and Technology. Furthermore the programme aiming towards the achievement of 1% GDP investment in Science and Technology by 2010 as it was decided in Khartoum Decision (EX.CL/Dec.254 (VIII) and Assembly/AU/Dec. 161 (VIII) in Addis Ababa.

A Strategy for the development of the AU Science and Technology policy framework was developed and presented by the HRST department to the Bureau of the African Ministerial Conference on Science and Technology (AMCOST III) in its fifth ordinary session and this strategy was indorsed by the meeting, 2<sup>nd</sup> of May 2008 Addis Ababa, Ethiopia.

The abovementioned strategy describes the roadway to develop the Policy framework in one hand and in the other hand it highlights the role of each stakeholder and it comprise of the following phases.

- Management, Data Collection and AU statistics on S&T;
- Analysis of the Statistics output;
- Drafting the AUC S&T Policy framework;
- Capacity building; and
- Evaluation and Monitoring

## 2. Project Description

The Department of Human Resources Science and Technology recognizes this important decision and is aware that Africa must quickly mobilize its scientific resources to initiate a sustainable scientific progress that enables continental access to scientific knowledge, technology, training and products for the development of the continent. In this context the HRST department intends to develop an African Science and Technology Policy Framework that address the African Problems and gives an African solution for it.

This project is a direct respond from the HRST Department to the January 2007 Summit declaration of the year 2007 to be the launching year of building constituencies and champions for Science, Technology and Innovation in Africa, Assembly/AU/Dec.161 (VIII), Addis Ababa 2007. Recognizing this decision, the department was convinced that Africa must quickly mobilize its scientific resources to initiate a sustainable scientific progress that enables continental access to scientific knowledge, technology, training and products for the development of the continent. In this context the HRST department intends to develop an African Science and Technology Policy Framework that address the African Problems and gives an African solution for it.

The project is composed of the following phases

- Management, Data Collection and AU statistics on S&T;
- Analysis of the Statistics output;
- Drafting the AUC S&T Policy framework;
- Capacity building; and
- Evaluation and Monitoring

### **Phase one: Management, Data Collection and AU statistics on S&T.**

- a) African Science and Technology Strategic planning meeting for the implementation of the Africa's Science and Technology Consolidated Plan of Action (CPA); This meeting was conducted and the major output was a strategy for the CPA implementation was developed and introduced to the AMCOST III meeting Mombassa, Kenya, November 2007;
- b) African Science, Technology and Innovation Indicators intergovernmental meeting: A meeting was organized by NEPAD/OST to establish an intergovernmental committee for the Science, Technology and Innovation indicators, Maputo, in September 2007. The committee held its second meeting in RSA March 2008 for further consultation on the indicator issues and the way to kick-off the programme.
- c) Establishment of the African Cluster on Science and Technology; in order to harmonize the efforts and avoid the wastage of the limited resources Africa had an African Cluster on Science and Technology was proposed along with its ToR to the AMCOST III Bureau meeting and consequently it was approved. The HRST conducted a several consultation with the stakeholders to launch the Cluster by the mid of July 2008.
- d) African Science, Technology and Innovation Indicators;
- e) African Union S & T Statistical System;
- f) The AU survey for the Science and Technology in Member States;

### **Phase Two: Analysis of the Statistics output.**

- a) The analysis of the survey outcome;
- b) Publishing of the African Science and Technology 2009-2010 survey report/outlook.

**Phase Three: Drafting the AUC S&T Policy framework.**

- a) S&T situational analysis of Africa

The draft policy framework should give a situational analysis of the continent's science and technology base taking into consideration the following:

- The state of science and technology policies in African countries;
- The current tenuous links of science to the market place;
- Specific knowledge gaps and knowledge needs;
- Local versus international sources of innovative inputs;
- The performance of state institutions in mainstreaming domestic technological change;
- Funding and support for research and development initiatives; and
- The strengths, weaknesses, opportunities, and threats to domestic institutions vested with responsibilities to facilitate scientific and technological progress.

- b) Drafting the African union Science and Technology Policy framework

**The Commission of the African Union will engage the services of six consultants to develop a draft science and technology policy framework for Africa:**

- **Five consultants will be drawn from each region and will carryout the work in that region and work closely with the responsible focal points of Regional Economic Communities (RECs) and Member States, noting that some RECs may have already started work in this regard.**
- **One Senior Consultant responsible for coordinating and consolidating the regional inputs of the draft policy framework produced by the five consultants.**

- c) High Level Committee Meeting on Draft Policy Framework

A high level committee will be established and meet to deliberate on the African Union Science and Technology. The mandate of this committee will be to examine the policy and to guide the consultancy team.

- d) Member States Review of the Revised Policy Framework

The Draft policy will be dispatched to the AU member states and RECs for their comments and final inputs.

- e) Presentation of the draft policy framework to the organs of the AU

The Commission will present the draft policy framework to the organs of the AU for consideration starting with the Bureau through the AMCOST to the AU Assembly for endorsement.

**Phase four: Capacity Building**

The Commission will conduct regional capacity building/training programmes on

implementation of the of the policy framework

**Phase Five: Evaluation and Monitoring**

The HRST Department will monitor and evaluate the implementation of the African Union policy framework and produces the African Science and technology outlook and Reports biennially till the time where its Science and Technology observatory become full operational. Recalling that the department is attending to establish an African STI observatory and institution for science and technology policy

**3. Timeframe (months):**

Estimated Duration	Four years	Planned Start	January 2009
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**4. Objectives**

Overall Goal:

The overall goal of this project is to develop an African Science and Technology Policy Framework that address the African Problems and gives an African solution for it. This policy framework will be a guide to the AU member states to develop and/or improve their policies.

Specific Objectives:

	Description of objective
A	To develop an AU database and statistics inference system on the status of S&T in each individual state and the African continent at large
B	Develop a mechanism and policy draft to drive and/or accelerate the Africa development via S&T.
C	To harmonization Science and Technology policies and research activities in the continent and exploit synergies among RECS, Member States and the streamline collaboration with international partners
D	Production of African Science and Technology biannual report

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost (\$)
1	Strategy for the implantation of the Africa's Science and Technology consolidated plan of action	<p>A strategic planning meeting designed to take place to kickoff the African Science and Technology Policy framework and to:</p> <ul style="list-style-type: none"> <li>• Define the African Vision of Science and Technology,</li> <li>• Highlight the Strategic objectives of the African Science and Technology Policy,</li> <li>• Define African common priorities in Science and Technology issues,</li> <li>• Define the Key players in the formation of the African Science and Technology Policy framework and their roles, and</li> <li>• Define the roles of the formation of the Science and Technology policy development committee.</li> </ul> <p>This meeting designed to take place in July 2007 the following participants are expected to join the meeting:</p> <ul style="list-style-type: none"> <li>• The members of the AMCOST Steering committee;</li> <li>• The HRST Department;</li> <li>• The NEPAD office of Science and Technology;</li> <li>• The Officers responsible for Science and Technology in the RECS; and</li> <li>• The Development partners such as UNECA, ADB, UNDP, and UNESCO.</li> </ul>	1	<p>Done</p> <p>Strategy for the implantation of the Africa's Science and Technology consolidated plan of action</p>
2	Developing an African Science statistics system (unification of the Science and Technology indicators, the harmonization of categories and definitions used by science statisticians in the Member States.)	<p>The HRST department of the AUC intends to develop a statistical manual Harmonization of categories and definitions used by science statisticians in the Member States.</p> <ul style="list-style-type: none"> <li>• African Science and Technology statistical manual</li> <li>• African Union statistical system for Science and Technology.</li> <li>• Member states will develop their own National statistical system based on the AU one.</li> </ul>	1	This activity will be done through the African Union S&T Observatory
3	Strategy for the development of Science and Technology Policy framework	<p>Designing the Strategy for the development of the African Science and Technology Policy framework</p> <p>A drafted strategy to be developed by the HRST Department to drive the establishment of the S&amp;T policy framework</p> <p>Strategy for the development of the African Science and Technology policy framework was presented and endorsed by the AMCOST III Bureau Addis Ababa , May 2008</p>	1	Done

4	Baseline study on the African Union Science and Technology activities and situation	<p>The HRST department of the AUC intends to Launch a survey on the Science and Technology that will be a reference document to the consultancy team which will develop the AU S&amp;T policy framework the survey will include and not limited to</p> <ul style="list-style-type: none"> <li>▪ Member States S&amp;T policies if any</li> <li>▪ RECs S&amp;T Polices</li> <li>▪ UNESCO S&amp;T Surveys and reports</li> <li>▪ UNECA reports country profile</li> <li>▪ World Bank reports</li> <li>▪ Model on studies on the developing countries</li> <li>▪ etc.</li> </ul>	1	<p>3 Consultant for four months and regional investigation visits</p> <p>100,000</p>
5	SWOT analysis of the African Science and Technology sector	<p>The SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) is a management instrument for developing structured response options to deal with external threats and exploit opportunities.</p> <p>This stage will be huddled by group of consultants representing the five African regions. The consultancy group will conduct a SWAT analysis of the African Science and Technology sector using all the available date that includes the Africa's Science and Technology report and the existing S &amp;T Member States' policies if any.</p>	1	<p>Cost is included in activity No. 6</p>
6	<p>Draft African Science and Technology Policy will be a product, which results from all the previous activities and phases.</p> <p>The draft policy will be drafted by a group of Consultant representing the five African regions under the supervision of the HRST department and the AMCOST Steering Committee.</p>	Draft African Science and Technology Policy		<p>5 Consultants for 10 Months for 5,000/ Month</p> <p>250,000</p> <p>Lead consultant for one year for 7,000/Month 84, 0000</p> <p>Desk officer for the policy development for the project period</p> <p>3,000 * 48 * 1=</p> <p>144,000</p> <p>Total of this activity is 478,000</p>

7	Finalizing the African Science and Technology optimum policy	<ul style="list-style-type: none"> <li>• <u>Workshop for defining the optimum African Science and Technology policy</u></li> </ul> <p>After the finalization of the draft policy a meeting for the AMCOST on expert level will be conducted to investigate the proposed policy and to comment on it.</p> <ul style="list-style-type: none"> <li>• <u>Member States comments on the draft policy</u></li> </ul> <p>Finally the draft policy will be dispatched to the Member States for their inputs and their final comments.</p> <ul style="list-style-type: none"> <li>• <u>Finalizing the African Science and Technology optimum policy</u></li> </ul> <p>In this step the policy will be finalized, since all the comments and recommendations will incorporate by the consultancy team and the HRST department.</p> <ul style="list-style-type: none"> <li>• <u>Presenting the African Science and Technology Policy to the AMCOST.</u></li> </ul> <p>The African Science and Technology policy will be presented to the AMCOST by the Consultancy team and the HRST department. Then the AMCOST will comment on the policy and finally the AMCOST will indorse the African Science and Technology policy after its amendment if any.</p>	1  1  1  1	300,000  15,000  15,000  10,000
	Development of the African Science and Technology Strategies	<p>The full policy document that will stand as the African Science and Technology framework will contains a sector-specific policy issues and strategies on:</p> <ul style="list-style-type: none"> <li>• African Strategy on Human Resources Development Science and Technology</li> <li>• African Strategy on Technology Development and Transfer</li> <li>• African Space Science and Technology strategy</li> <li>• African Nuclear Science and Technology strategy</li> <li>• African Science and Technology strategy on Renewable Energy</li> <li>• African Science and Technology Strategy on neon-Technology</li> <li>• African Strategy for Popularization and Utilization of Science and Technology</li> <li>• African Strategy for the utilization of the African Indigenous knowledge and technology for development.</li> <li>• African Science and Technology strategy on Incubators</li> </ul>	1	<p>The development of each sector-specific policy issues and strategies will cost 100, 000 to be developed and examined by experts and finally it will be presented to the AMCOST for endorsement 10 * 100,000</p> <p>Total cost for this activity is 1000,000</p>
8	capacity building for the Member States Officials	<ul style="list-style-type: none"> <li>• Programme for the S&amp;T official will be conducted in regional bases with the support of RECs.</li> <li>• Regional workshop</li> <li>• National workshop</li> </ul>	1	<p>Covered in item 6</p> <p>5 Workshop will be conducted 3experts/ Member State will be trained for 4days 600,000</p> <p>will be covered by the member states</p>



## UNESCO Project N° SC/PSD, 31 Jan 2008

**Outlines of activities for inclusion in  
The “Additional Programme : Initiative for capacity building  
in science policy in Central Africa”**  
(Capacity building in Science and Technology in Africa Responding to Africa’s Science  
and Technology Consolidated Plan of Action: **Flagship Project 1**  
in further reinforcement of the 34 C/5

<b>Title of / - MLA - /inter-sectoral platform - concrete activity</b>	02029 – MLA 5 : Science, technology and innovation (STI) policy for sustainable development Launch of the African Science, Technology and Innovation Policy Initiative (ASTIPI)
<b>Link to: - MLA or - inter-sectoral platform in 34 C/5 (if the outline is for a concrete activity)</b>	<b>Inter-sectoral platform</b> <ul style="list-style-type: none"> <li>■ Science education – with inputs from MPs I, II and III;</li> <li>Education for sustainable development – with inputs from all sectors;</li> <li>Strengthening national research systems – with inputs from MPs I, II, III and V;</li> <li>■ Development of a cross-sectoral programme for capacity-building – with input from all sectors;</li> <li>■ Priority Africa: coordinating and monitoring the plan of action to benefit Africa – with input from all sectors.</li> </ul>
<b>Links to UNESCO’s global priorities (Africa; gender equality)</b>	AFRICA
<b>Main expected results, and their links to expected results for relevant MLA/inter-sectoral platform</b>	The African Science, Technology and Innovation Policy Initiative (ASTIPI) will be used to lend support to the implementation of the CPA to strengthen science and technology policies of 5 Central African Member States. Expected results are linked to the UNESCO Action Plan for Africa. Among the expected outcomes: <ul style="list-style-type: none"> <li>▪ A survey of countries S &amp; T policies</li> <li>▪ Analysis of training needs in terms of the capacity to develop policies</li> <li>▪ Build capacities in science, technology and innovation policy formulation</li> <li>▪ Policies for science and technology adopted by African governments</li> <li>▪ Planning capacities of the 5 African governments strengthened at various levels</li> <li>▪ Up to a 20 policy analysts trained per two countries</li> <li>▪ Policies formulated in these five countries in 2008-2010</li> <li>▪ An ASTIPI postgraduate course designed and implemented</li> <li>▪ Creation of an African e-library of science, technology and innovation policy</li> <li>▪ Centres of excellence reinforced</li> <li>▪ Availability of STI indicator information improved</li> </ul>
<b>Main objectives of outline</b>	In cooperation with AU/NEPAD, the objectives of the African Science, Technology and Innovation Policy Initiative (ASTIPI) will be <ul style="list-style-type: none"> <li>▪ to assess the status of science and technology policy</li> </ul>

	<ul style="list-style-type: none"> <li>▪ formulation and training needs in science, technology and innovation policy formulation</li> <li>▪ build capacities in science, technology and innovation policy formulation</li> <li>▪ develop a training manual on S&amp;T indicators</li> <li>▪ S&amp;T indicator specialists trained</li> <li>▪ evidence based national S&amp;T policies adopted</li> <li>▪ R&amp;D evaluation mechanisms integrated into S&amp;T policies</li> </ul>		
<b>Duration (project period)</b>	24 months - Phase I		
<b>Target beneficiaries</b>	Central African countries: Central African Republic, Cameroon, Burundi, Chad, DR of Congo		
<b>Geographical Scope</b>	AFRICA, Central Africa as designated by the African Avicenna Virtual Campus		
<b>Implementing Unit (Field Office, Institute, HQ Unit)</b>	HQ SC/PSD, UIS in cooperation with Field-Offices, Nairobi and Dakar		
<b>Link to national development strategy (for activities to be implemented at national level)</b>	Yes X	No	- capacity building in science, technology and innovation policy for sustainable development
<b>Link with country level programming instruments (UNDAF, PRS, UNESCO Country Programming Documents...)</b>	Yes X	No	<p>The African Union Summit of Heads of State and Government, which took place in Addis Ababa (Ethiopia) in January 2007, adopted the Declaration on Science, Technology and Scientific Research for Development (Assembly/AU/Decl.5 (VIII) and the Decision on the Report of the Extraordinary Conference of Ministers of Science and Technology (Assembly/AU/Decl.5 (VIII) and (DOC.EX.CL/315(X)) which includes the adoption of the <i>Consolidated Plan of Action (CPA)</i>.</p> <p>In the spirit of the special partnership called for by the African leaders themselves, UNESCO is eager to play its follow-up role and contribute to the implementation of the CPA at the continental and sub-regional levels, together with the African Union and the Regional Economic Communities.</p> <p>UNESCO's Regional Bureau for Science in Nairobi (ROSTA) and the Division of Science Policy and Sustainable Development in the Natural Sciences Sector (SC/PSD) will play the lead role in this regard.</p>
<b>Brief description of main interventions proposed, and the implementation strategy foreseen (max 250 words), also underlining UNESCO's comparative advantage, and sustainability/exit strategy for activity</b>	<p>In cooperation with UIS, other United Nations agencies belonging to the S&amp;T cluster and in consultation with AU/NEPAD, the project will be implemented in Five African Member States. The strategic approach for the implementation of the project will be via the National Research Systems and policy makers.</p> <ul style="list-style-type: none"> <li>- Assessment of country level STI policies with local governments</li> <li>- Analysis of assessments through training workshops, regional and national (UIS)</li> </ul>		

	<ul style="list-style-type: none"> <li>- Assistance in building quality science policies, standards, monitoring, evaluation</li> <li>- Harnessing (<i>Domesticating</i>) the AU Plans into regional programmes and projects</li> <li>- Facilitation of regional consultations and meetings towards greater integration of STI policies</li> <li>- Strengthening of communication between Member States and between them and the AU Commission.</li> </ul>
<b>Total Budget (US\$)</b>	US\$ - Phase I
<b>Indication of possible donor interest</b>	All donors in addition to Scandinavian Countries. The EC and China have shown interest.

<b>Type of intervention</b>	<b>Please tick relevant box</b>
Assistance to country level/regional policy or strategy formulation	x
Capacity building	X
Research/studies	X
Punctual operational activity	X
Strengthening the role of UNESCO in UN programming and reform	X
Support to UNESCO's normative action	x
Institutional support to UNESCO	X
Other: please specify	

## UNESCO Project N° SC/PSD, 31 Jan 2008

**Outlines of activities for inclusion in  
The “Additional Programme : Initiative for capacity building  
in science policy in East Africa”**  
(Capacity building in Science and Technology in Africa Responding to Africa’s Science  
and Technology Consolidated Plan of Action: **Flagship Project 1**  
in further reinforcement of the 34 C/5

<b>Title of / - MLA - /inter-sectoral platform - concrete activity</b>	02029 – MLA 5 : Science, technology and innovation (STI) policy for sustainable development Launch of the African Science, Technology and Innovation Policy Initiative (ASTIPI)
<b>Link to: - MLA or - inter-sectoral platform in 34 C/5 (if the outline is for a concrete activity)</b>	<b>Inter-sectoral platform</b> <ul style="list-style-type: none"> <li>■ Science education – with inputs from MPs I, II and III;</li> <li>Education for sustainable development – with inputs from all sectors;</li> <li>Strengthening national research systems – with inputs from MPs I, II, III and V;</li> <li>■ Development of a cross-sectoral programme for capacity-building – with input from all sectors;</li> <li>■ Priority Africa: coordinating and monitoring the plan of action to benefit Africa – with input from all sectors.</li> </ul>
<b>Links to UNESCO’s global priorities (Africa; gender equality)</b>	AFRICA
<b>Main expected results, and their links to expected results for relevant MLA/inter-sectoral platform</b>	The African Science, Technology and Innovation Policy Initiative (ASTIPI) will be used to lend support to the implementation of the CPA to strengthen science and technology policies of Four Eastern African Member States. Expected results are linked to the UNESCO Action Plan for Africa. Among the expected outcomes: <ul style="list-style-type: none"> <li>▪ A survey of countries S &amp; T policies</li> <li>▪ Analysis of training needs in terms of the capacity to develop policies</li> <li>▪ Build capacities in science, technology and innovation policy formulation</li> <li>▪ Policies for science and technology adopted by African governments</li> <li>▪ Planning capacities of African governments strengthened at various levels</li> <li>▪ Up to a 20 policy analysts trained per two countries</li> <li>▪ Policies formulated in four countries in 2008-2010</li> <li>▪ An ASTIPI postgraduate course designed and implemented</li> <li>▪ Creation of an African e-library of science, technology and innovation policy</li> <li>▪ Centres of excellence reinforced</li> <li>▪ Availability of STI indicator information improved</li> </ul>
<b>Main objectives of outline</b>	In cooperation with AU/NEPAD, the objectives of the African Science, Technology and Innovation Policy Initiative (ASTIPI) will be <ul style="list-style-type: none"> <li>▪ to assess the status of science and technology policy</li> </ul>

	<ul style="list-style-type: none"> <li>▪ formulation and training needs in science, technology and innovation policy formulation</li> <li>▪ build capacities in science, technology and innovation policy formulation</li> <li>▪ develop a training manual on S&amp;T indicators</li> <li>▪ S&amp;T indicator specialists trained</li> <li>▪ evidence based national S&amp;T policies adopted</li> <li>▪ R&amp;D evaluation mechanisms integrated into S&amp;T policies</li> </ul>		
<b>Duration (project period)</b>	24 months - Phase I		
<b>Target beneficiaries</b>	East African countries: Uganda, Sudan, Eritrea, Somalia		
<b>Geographical Scope</b>	AFRICA, Eastern African countries as designated by the Avicenna African Virtual Campus		
<b>Implementing Unit (Field Office, Institute, HQ Unit)</b>	HQ SC/PSD, UIS in cooperation with Field-Office of Kenya		
<b>Link to national development strategy (for activities to be implemented at national level)</b>	Yes X	No	- capacity building in science, technology and innovation policy for sustainable development
<b>Link with country level programming instruments (UNDAF, PRS, UNESCO Country Programming Documents...)</b>	Yes X	No	<p>The African Union Summit of Heads of State and Government, which took place in Addis Ababa (Ethiopia) in January 2007, adopted the Declaration on Science, Technology and Scientific Research for Development (Assembly/AU/Decl.5 (VIII) and the Decision on the Report of the Extraordinary Conference of Ministers of Science and Technology (Assembly/AU/Decl.5 (VIII) and (DOC.EX.CL/315(X)) which includes the adoption of the <i>Consolidated Plan of Action (CPA)</i>.</p> <p>In the spirit of the special partnership called for by the African leaders themselves, UNESCO is eager to play its follow-up role and contribute to the implementation of the CPA at the continental and sub-regional levels, together with the African Union and the Regional Economic Communities.</p> <p>UNESCO's Regional Bureau for Science in Nairobi (ROSTA) and the Division of Science Policy and Sustainable Development in the Natural Sciences Sector (SC/PSD) will play the lead role in this regard.</p>
<b>Brief description of main interventions proposed, and the implementation strategy foreseen (max 250 words), also underlining UNESCO's comparative advantage, and sustainability/exit strategy for activity</b>	<p>In cooperation with UIS, other United Nations agencies belonging to the S&amp;T cluster and in consultation with AU/NEPAD, the project will be implemented in Four Eastern African Member States. The strategic approach for the implementation of the project will be via the National Research Systems and policy makers.</p> <ul style="list-style-type: none"> <li>- Assessment of country level STI policies with local governments</li> <li>- Analysis of assessments through training workshops, regional and national (UIS)</li> <li>- Assistance in building quality science policies, standards,</li> </ul>		

	monitoring, evaluation - Harnessing ( <i>Domesticating</i> ) the AU Plans into regional programmes and projects - Facilitation of regional consultations and meetings towards greater integration of STI policies - Strengthening of communication between Member States and between them and the AU Commission.
<b>Total Budget (US\$)</b>	
<b>Indication of possible donor interest</b>	All donors in addition to Scandinavian Countries. The EC and China have shown interest.

<b>Type of intervention</b>	<b>Please tick relevant box</b>
Assistance to country level/regional policy or strategy formulation	x
Capacity building	X
Research/studies	X
Punctual operational activity	X
Strengthening the role of UNESCO in UN programming and reform	X
Support to UNESCO's normative action	x
Institutional support to UNESCO	X
Other: please specify	

## UNESCO Project N<sup>o</sup> SC/PSD, 31 Jan 2008

**Outlines of activities for inclusion in**  
**The “Additional Programme : Initiative for capacity building**  
**in science policy in Southern Africa”**  
 (Capacity building in Science and Technology in Africa Responding to Africa’s Science  
 and Technology Consolidated Plan of Action: **Flagship Project 1**  
 in further reinforcement of the 34 C/5

<b>Title of / - MLA - /inter-sectoral platform - concrete activity</b>	02029 – MLA 5 : Science, technology and innovation (STI) policy for sustainable development Launch of the African Science, Technology and Innovation Policy Initiative (ASTIPI)
<b>Link to: - MLA or - inter-sectoral platform in 34 C/5 (if the outline is for a concrete activity)</b>	<b>Inter-sectoral platform</b> <ul style="list-style-type: none"> <li>■ Science education – with inputs from MPs I, II and III;</li> <li>Education for sustainable development – with inputs from all sectors;</li> <li>Strengthening national research systems – with inputs from MPs I, II, III and V;</li> <li>■ Development of a cross-sectoral programme for capacity-building – with input from all sectors;</li> <li>■ Priority Africa: coordinating and monitoring the plan of action to benefit Africa – with input from all sectors.</li> </ul>
<b>Links to UNESCO’s global priorities (Africa; gender equality)</b>	AFRICA
<b>Main expected results, and their links to expected results for relevant MLA/inter-sectoral platform</b>	The African Science, Technology and Innovation Policy Initiative (ASTIPI) will be used to lend support to the implementation of the CPA to strengthen science and technology policies of Three African Member States. Expected results are linked to the UNESCO Action Plan for Africa. Among the expected outcomes: <ul style="list-style-type: none"> <li>▪ A survey of countries S &amp; T policies</li> <li>▪ Analysis of training needs in terms of the capacity to develop policies</li> <li>▪ Build capacities in science, technology and innovation policy formulation</li> <li>▪ Policies for science and technology adopted by African governments</li> <li>▪ Planning capacities of African governments strengthened at various levels</li> <li>▪ Up to a 20 policy analysts trained per two countries</li> <li>▪ Policies formulated in the three countries in 2008-2010</li> <li>▪ An ASTIPI postgraduate course designed and implemented</li> <li>▪ Creation of an African e-library of science, technology and innovation policy</li> <li>▪ Centres of excellence reinforced</li> <li>▪ Availability of STI indicator information improved</li> </ul>
<b>Main objectives of outline</b>	In cooperation with AU/NEPAD, the objectives of the African Science, Technology and Innovation Policy Initiative (ASTIPI) will be <ul style="list-style-type: none"> <li>▪ to assess the status of science and technology policy</li> </ul>

	<ul style="list-style-type: none"> <li>▪ formulation and training needs in science, technology and innovation policy formulation</li> <li>▪ build capacities in science, technology and innovation policy formulation</li> <li>▪ develop a training manual on S&amp;T indicators</li> <li>▪ S&amp;T indicator specialists trained</li> <li>▪ evidence based national S&amp;T policies adopted</li> <li>▪ R&amp;D evaluation mechanisms integrated into S&amp;T policies</li> </ul>		
<b>Duration (project period)</b>	24 months - Phase I		
<b>Target beneficiaries</b>	Southern Africa countries: Zimbabwe, Zambia and Botswana		
<b>Geographical Scope</b>	AFRICA, Southern African countries		
<b>Implementing Unit (Field Office, Institute, HQ Unit)</b>	HQ SC/PSD, UIS in cooperation with Field-Office of Kenya		
<b>Link to national development strategy (for activities to be implemented at national level)</b>	Yes X	No	- capacity building in science, technology and innovation policy for sustainable development
<b>Link with country level programming instruments (UNDAF, PRS, UNESCO Country Programming Documents...)</b>	Yes X	No	<p>The African Union Summit of Heads of State and Government, which took place in Addis Ababa (Ethiopia) in January 2007, adopted the Declaration on Science, Technology and Scientific Research for Development (Assembly/AU/Decl.5 (VIII) and the Decision on the Report of the Extraordinary Conference of Ministers of Science and Technology (Assembly/AU/Decl.5 (VIII) and (DOC.EX.CL/315(X)) which includes the adoption of the <i>Consolidated Plan of Action (CPA)</i>.</p> <p>In the spirit of the special partnership called for by the African leaders themselves, UNESCO is eager to play its follow-up role and contribute to the implementation of the CPA at the continental and sub-regional levels, together with the African Union and the Regional Economic Communities.</p> <p>UNESCO's Regional Bureau for Science in Nairobi (ROSTA) and the Division of Science Policy and Sustainable Development in the Natural Sciences Sector (SC/PSD) will play the lead role in this regard.</p>
<b>Brief description of main interventions proposed, and the implementation strategy foreseen (max 250 words), also underlining UNESCO's comparative advantage, and sustainability/exit strategy for activity</b>	<p>In cooperation with UIS, other United Nations agencies belonging to the S&amp;T cluster and in consultation with AU/NEPAD, the project will be implemented in African Member States. The strategic approach for the implementation of the project will be via the National Research Systems and policy makers.</p> <ul style="list-style-type: none"> <li>- Assessment of country level STI policies with local governments</li> <li>- Analysis of assessments through training workshops, regional and national (UIS)</li> <li>- Assistance in building quality science policies, standards,</li> </ul>		

	monitoring, evaluation - Harnessing ( <i>Domesticating</i> ) the AU Plans into regional programmes and projects - Facilitation of regional consultations and meetings towards greater integration of STI policies - Strengthening of communication between Member States and between them and the AU Commission.
<b>Total Budget (US\$)</b>	
<b>Indication of possible donor interest</b>	All donors in addition to Scandinavian Countries. The EC and China have shown interest.

<b>Type of intervention</b>	<b>Please tick relevant box</b>
Assistance to country level/regional policy or strategy formulation	x
Capacity building	X
Research/studies	X
Punctual operational activity	X
Strengthening the role of UNESCO in UN programming and reform	X
Support to UNESCO's normative action	x
Institutional support to UNESCO	X
Other: please specify	

## UNESCO Project N° SC/PSD, 31 Jan 2008

**Outlines of activities for inclusion in  
The “Additional Programme : Initiative for capacity building  
in science policy in West Africa”**  
(Capacity building in Science and Technology in Africa Responding to Africa’s Science  
and Technology Consolidated Plan of Action: **Flagship Project 1**  
in further reinforcement of the 34 C/5

<b>Title of / - MLA - /inter-sectoral platform - concrete activity</b>	02029 – MLA 5 : Science, technology and innovation (STI) policy for sustainable development Launch of the African Science, Technology and Innovation Policy Initiative (ASTIPI)
<b>Link to: - MLA or - inter-sectoral platform in 34 C/5 (if the outline is for a concrete activity)</b>	<b>Inter-sectoral platform</b> <ul style="list-style-type: none"> <li>■ Science education – with inputs from MPs I, II and III;</li> <li>Education for sustainable development – with inputs from all sectors;</li> <li>Strengthening national research systems – with inputs from MPs I, II, III and V;</li> <li>■ Development of a cross-sectoral programme for capacity-building – with input from all sectors;</li> <li>■ Priority Africa: coordinating and monitoring the plan of action to benefit Africa – with input from all sectors.</li> </ul>
<b>Links to UNESCO’s global priorities (Africa; gender equality)</b>	AFRICA
<b>Main expected results, and their links to expected results for relevant MLA/inter-sectoral platform</b>	The African Science, Technology and Innovation Policy Initiative (ASTIPI) will be used to lend support to the implementation of the CPA to strengthen science and technology policies of six West African Member States. Expected results are linked to the UNESCO Action Plan for Africa. Among the expected outcomes: <ul style="list-style-type: none"> <li>▪ A survey of countries S &amp; T policies</li> <li>▪ Analysis of training needs in terms of the capacity to develop policies</li> <li>▪ Build capacities in science, technology and innovation policy formulation</li> <li>▪ Policies for science and technology adopted by African governments</li> <li>▪ Planning capacities of African governments strengthened at various levels</li> <li>▪ Up to a 20 policy analysts trained per two countries</li> <li>▪ Policies formulated in six countries in 2008-2010</li> <li>▪ An ASTIPI postgraduate course designed and implemented</li> <li>▪ Creation of an African e-library of science, technology and innovation policy</li> <li>▪ Centres of excellence reinforced</li> <li>▪ Availability of STI indicator information improved</li> </ul>
<b>Main objectives of outline</b>	In cooperation with AU/NEPAD, the objectives of the African Science, Technology and Innovation Policy Initiative (ASTIPI) will be <ul style="list-style-type: none"> <li>▪ to assess the status of science and technology policy</li> </ul>

	<ul style="list-style-type: none"> <li>▪ formulation and training needs in science, technology and innovation policy formulation</li> <li>▪ build capacities in science, technology and innovation policy formulation</li> <li>▪ develop a training manual on S&amp;T indicators</li> <li>▪ S&amp;T indicator specialists trained</li> <li>▪ evidence based national S&amp;T policies adopted</li> <li>▪ R&amp;D evaluation mechanisms integrated into S&amp;T policies</li> </ul>		
<b>Duration (project period)</b>	24 months - Phase I		
<b>Target beneficiaries</b>	West African countries: Burkina Faso, Mali, Liberia, Sierra Leone, Guinea, Niger,		
<b>Geographical Scope</b>	AFRICA, Western African countries		
<b>Implementing Unit (Field Office, Institute, HQ Unit)</b>	HQ SC/PSD, UIS in cooperation with Field-Offices of Kenya, Dakar, Maputo		
<b>Link to national development strategy (for activities to be implemented at national level)</b>	Yes X	No	- capacity building in science, technology and innovation policy for sustainable development
<b>Link with country level programming instruments (UNDAF, PRS, UNESCO Country Programming Documents...)</b>	Yes X	No	<p>The African Union Summit of Heads of State and Government, which took place in Addis Ababa (Ethiopia) in January 2007, adopted the Declaration on Science, Technology and Scientific Research for Development (Assembly/AU/Decl.5 (VIII) and the Decision on the Report of the Extraordinary Conference of Ministers of Science and Technology (Assembly/AU/Decl.5 (VIII) and (DOC.EX.CL/315(X)) which includes the adoption of the <i>Consolidated Plan of Action (CPA)</i>.</p> <p>In the spirit of the special partnership called for by the African leaders themselves, UNESCO is eager to play its follow-up role and contribute to the implementation of the CPA at the continental and sub-regional levels, together with the African Union and the Regional Economic Communities.</p> <p>UNESCO's Regional Bureau for Science in Nairobi (ROSTA) and the Division of Science Policy and Sustainable Development in the Natural Sciences Sector (SC/PSD) will play the lead role in this regard.</p>
<b>Brief description of main interventions proposed, and the implementation strategy foreseen (max 250 words), also underlining UNESCO's comparative advantage, and sustainability/exit strategy for activity</b>	<p>In cooperation with UIS, other United Nations agencies belonging to the S&amp;T cluster and in consultation with AU/NEPAD, the project will be implemented in six Western African Member States. The strategic approach for the implementation of the project will be via the National Research Systems and policy makers.</p> <ul style="list-style-type: none"> <li>- Assessment of country level STI policies with local governments</li> <li>- Analysis of assessments through training workshops, regional and national (UIS)</li> <li>- Assistance in building quality science policies, standards,</li> </ul>		

	monitoring, evaluation - Harnessing ( <i>Domesticating</i> ) the AU Plans into regional programmes and projects - Facilitation of regional consultations and meetings towards greater integration of STI policies - Strengthening of communication between Member States and between them and the AU Commission.
<b>Total Budget (US\$)</b>	
<b>Indication of possible donor interest</b>	All donors in addition to Scandinavian Countries. The EC and China have shown interest.

<b>Type of intervention</b>	<b>Please tick relevant box</b>
Assistance to country level/regional policy or strategy formulation	x
Capacity building	X
Research/studies	X
Punctual operational activity	X
Strengthening the role of UNESCO in UN programming and reform	X
Support to UNESCO's normative action	x
Institutional support to UNESCO	X
Other: please specify	



**SCIENCE AND TECHNOLOGY  
FOR THE DEVELOPMENT OF  
AFRICAN  
SMALL MEDIUM ENTERPREISES  
(SMEs) AND SUPPORT  
OF  
BUSINESS INCUBATOR  
NETWORKS**

## **SCIENCE AND TECHNOLOGY FOR THE DEVELOPMENT OF AFRICAN SMALL MEDIUM ENTERPRISES (SMEs) AND SUPPORT OF BUSINESS INCUBATOR NETWORKS**

### **Aim:**

The project will primarily focus science and technology to provide value-added services to already existing small medium enterprise. They should be supported in improving and creating more efficient and sustainable production activities. Furthermore, attention will be provided to research and innovation technologies able to enhance the capacities of African industry for its integration in the globalised world. A specific scientific support will be given to the business incubators activity by providing successful inclusive environment and linking innovators and researchers with African industry and business communities

### **Background:**

Africa's Science and Technology Consolidated Plan of Action (CPA) a flagship programme that aims at promoting the creation of Technology Parks and Incubators. The transition from the conduct of science or research to the application of scientific knowledge to generate specific products and process innovations requires more than the establishment of R&D institutions and programmes, but also requires institutional arrangements such as technology incubators, parks or innovation hubs that promote the creation and/or use of business or commercially oriented enterprises for innovation.

Science and research technologies have the mandate to accompany this effort for African industrial development. They have to provide useful inputs to develop technologies respectful of the environment and of the societies. At the same time they have to allow African industries to develop and incorporate themselves within the world trade dimension respecting the sustainable development principles and concepts.

### **Objectives:**

- Encourage the establishment of science and technology researches in offering scientific support to SMEs and parks for business incubators and, at the same time, strengthen linkages between public research and private industry and tap into regional and international research and development networks;
- Provide small and medium enterprises with scientific and technological tools useful for starting and enhancing innovation facilitating creation and adoption of innovative production technologies, with a view to improving gainful employment;
- Promote and provoke international cooperation and establish linkages aimed at sharing experiences between SMEs and forging partnerships for the provision of technical assistance and expertise with a view to maximizing coverage of the socio-economic benefits of the progress achieved by modern science and technology;

### **Activities:**

- (i) Strengthening existing science and technology support small medium enterprises (SMEs) and parks for business incubators at national and regional levels; and encourage establishment communication centres on innovation, science parks and R&D where the economic world may encounter the scientific one and create/identify needs and opportunities of research fruitful for both and for the sustainable development of Africa,

(ii) Establishing and promoting linkages among research institutions, consortiums and universities and the private sectors, in particular the SMEs via specific research activities jointly and commonly identified and aiming to improve the production capacities of the SME in a sustainable development context,

(iii) Assisting the development of the scientific and technological researches adapted to the needs of those start up enterprises identified via the incubators centres.

(iv) Establishing strategic partnerships with private sector and key African and International research institutions (universities, laboratories, institutions, companies, enterprises) to provide scientific knowledge, networking, and innovation, and to contribute to the technology and knowledge transfer culture.

**Expected Results:**

- African small medium enterprises sustained in their research needs via technical and practical researches connecting the academic end research centers to their specific requests in particular those having relevant and marketable results;
- The business incubators will channel the information on the scientific and technological availability and inform on the opportunities to receive scientific support via the linkage between research and business development.

**Requested EC contribution:** € 3 Millions over 3 years

(This project document will be elaborated during 2009 by the AUC-HRST staff with the help of the EC services dealing with researches and SMEs in the EU)



# **SECURING AND USING AFRICA'S INDIGENOUS AND TRADITIONAL KNOWLEDGE**

## **SECURING AND USING AFRICA'S INDIGENOUS AND TRADITIONAL KNOWLEDGE**

### **Aim:**

To strengthen Africa's capacity to harness and apply as well as protect indigenous knowledge and technologies in view to solve specific problems and improve the Africa's economies.

### **Background:**

Despite their contributions, indigenous and traditional knowledge and technologies are not adequately promoted and protected in most African countries. Institutions to valorise the indigenous and traditional knowledge are weak in most countries. In addition, there are weak links between the formal R&D institutions and local communities that hold and use the knowledge. This has denied Africa the opportunity to better understand and use its own indigenous / traditional knowledge tools techniques. Several NEPAD framework documents are devoted to the protection and promotion of indigenous knowledge and related technological innovations. Furthermore, there are several initiative related to indigenous knowledge in different part of the Planet. UNESCO had and has the merit to rationalise this asset of information and data and put them available to all concerned actors. In effect the UNESCO "Traditional Knowledge World Bank" (TKWB) valorises the existing activities of collecting indigenous/traditional knowledge data. Among them it is worthwhile to mention IPOGEA and ITKNET: IPOGEA is recognised by the European Union as the body par excellence for the safeguard and the enhancement of European Cultural Heritage and it is associate member of ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property). ITKNET - International Network of institutions and experts on Traditional Knowledge – networks different traditional knowledge experts covering mainly climate change, desertification, environmental conflicts and migrations (created under the FP6-EC Project "ResourceNet"). Two activities have to be considered as examples of existing tools for collecting, stocking and using the indigenous traditional knowledge data. Today, while the entire planet systems risks ecological collapse, Indigenous/Traditional Knowledge shows how to interact with the environment enhancing its resource potential without exhausting it.

### **Objectives:**

- Create and enhance public understanding of the nature and contributions of indigenous knowledge and technologies;
- Promote linkages between formal R&D institutions and holders of indigenous knowledge and technologies;
- Increase intra-African sharing and application of indigenous knowledge and technologies to solve specific problems;
- Improve the continent's capacity to protect indigenous knowledge and technologies from piracy and related misappropriation.

### **Expected results:**

- Create an African Databank on Indigenous Knowledge and Technologies (IKTs) within the TKWB;
- Adaptation of: comprehensive guidelines and methodologies for auditing and documenting IKTs; common protocol for provision to, and access and use of IKTs in the proposed bank.
- Training courses on auditing, collection and documentation of IKTs to be offered by identified institutions and experts.

- Creation of a virtual e-bank of indigenous knowledge and technologies, within that already prepared at world level;
- Networking of national indigenous knowledge documentation centres;
- Integration of Indigenous Knowledge and Practices in Education Curriculum formal education and training.

**There is no request for EC contribution at this stage.**

**A specific expert will be charged by AUC-HRST Dpt to redact an ad hoc project related to research and African indigenous/traditional knowledge in its wider world context.**



# **PAN AFRICAN INTELLECTUAL PROPERTY ORGANIZATION (PAIPO)**

## **PAN AFRICAN INTELLECTUAL PROPERTY ORGANIZATION (PAIPO)**

**(This project will be activated, defined and quantified once the AUC texts to the AU Heads of State, mentioned in the Background, will be officially endorsed and approved)\***

**Aim:** To provide a broad-based platform for African Member States to benefit from a coordinated stock of specialized intellectual property knowledge and services with a view to promoting innovation, techno-industrial competitiveness, and economic growth in Africa

### **Background:**

Considerable progress has been made under Trade-Related Intellectual Property Rights (TRIPS) and the Convention on Biological Diversity (CBD) that requires a common policy front by African countries. Growing pressures of globalization have also set the pace for many countries to secure effective guidance. With the right policy and institutional framework, African countries can forge ahead in stimulating both inventiveness and the generation of productive innovations. Recent developments on intellectual property involving major institutional initiatives at the global level have made vital for Africa to establish a Continental structure that would be responsible for protection of innovations and promotion of inventive activity. In their meeting in Addis Ababa (January 2007), the AU Heads of States and Governments had decided to establish a single Pan African Intellectual Property Organization (PAIPO). They requested AUC in collaboration with RECs, WIPO (World Intellectual Property Organization) and in coordination with African Intellectual Property Organization (AIPO) and the African Regional Intellectual Property Organization (ARIPO) to submit the texts relevant to the establishment of a single Pan-African Intellectual Property Organization (PAIPO).

### **Objectives:**

1. Develop Constitutive Articles to facilitate the operational existence of PAIPO
2. Establish a functional office to run intellectual property rights affairs
3. Design and mount training and capacity building programmes
4. Pursue cases against piracy
5. Develop IP policies for Member States

### **Activities:**

- a. Set IP standards that reflect the needs of Member States;
- b. Set benchmarks for best practices on intellectual property
- c. Promote the growth of knowledge-based economies in Africa
- d. Facilitate the rationalization and harmonization of IP standards
- e. Collect, process and disseminate relevant information on intellectual property to Member States
- f. Facilitate the utilization of relevant IP information by Member States

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**\* No EC Contribution is requested till definition and approval of the texts by AU Heads of State.**

- g. Assist Member States in training and capacity building on a wide range of IP matters
- h. Promote the use of IP to catalyse wealth creation
- i. Build and enhance public understanding of the nature and contributions of inventions and innovations to economic growth
- j. Promote linkages between formal R&D institutions and industry
- k. Improve the continent's capacity to protect inventions from piracy and related misappropriation.
- l. Promote the use of IP information in developing monitoring and evaluation mechanisms
- m. Assist in training and capacity building to strengthen regional IP institutions

**Expected outcomes:**

- Existence of a PAIPO office to serve policy interests of Member States
- Harmonized IP standards for Member States
- Enhanced capacity to undertake IP activities in all their diversity
- Facilitative arrangements to promote commercialisation of inventions in Africa
- Documentation of inventions and technologies



United Nations  
Educational, Scientific and  
Cultural Organization

# African Observatory for Science Technology and Innovation (AOSTI)

# AFRICAN OBSERVATORY FOR SCIENCE TECHNOLOGY AND INNOVATION (AOSTI)

## 1. Background

In January 2007, Africa's science and technology agenda topped the Summit of the AU Assembly that took decision Assembly/AU/Dec.161 (VIII) on science and technology and subsequently declared 2007 as the year of launching and building constituencies and champions of science, technology and innovation in Africa. The Assembly declaration called on UNESCO and other bilateral and multilateral organizations to support the Member States, Regional Economic Communities and the African Union to implement the Summit decision on Science and Technology.

By 176 EX/Decision 56, the Africa Group requested the Director-General to prepare a Plan of Action showing how UNESCO intends to contribute to the implementation of the decisions adopted and declaration made by the African Heads of State and Government at their 8<sup>th</sup> Summit, which took place in Addis Ababa, Ethiopia, in January 2007. At its 177th session, the UNESCO Executive Board approved document 177 EX/Decision 16 outlining the UNESCO Plan of Action approved by the General Conference in November 2007. The EXB/Decision 16 called upon UNESCO, as lead agency of the United Nations S&T Cluster for the Support of AU/NEPAD, to continue coordinating its work with other appropriate United Nations organizations as well as bilateral and multilateral institutions, so as to ensure coordinated and coherent implementation of the Plan of Action

177 EX/Decision 16 underscored the importance of an African STI observatory. UIS and the Natural Sciences Sector represented by SC/PSD will cooperate with AU/NEPAD in the preparation of a feasibility study for the establishment and operation of an African STI observatory "Elaboration of African Science and Technology Outlook (S&T indicators).

In recognition of its important role in the implementation of the CPA, UNESCO was unanimously nominated by the AMCOST Steering Committee on 1 May 2008 as a member of the AMCOST Bureau.

## 2. Project Description

Strengthening capacity in science for sustainable development, and harnessing the fruits of scientific discoveries for the alleviation of poverty and peaceful societies, can only be achieved within a comprehensive framework of science and technology that ensures the translation of STI research results to address societal issues. Identifying the needs for building such a system can only be coordinated by mapping the existing potential with respect to societal added value.

How can we make sure that scientific knowledge continues to drive development in our societies? How can the need to invest in the sciences that take into account citizens' needs be brought to the attention of governments, to be made to result in effective science policies? The objective of this project is to organize a set of activities to map capacity in science, technology and innovation across the African continent.

### ***Mapping STI capacity***

The term "capacity building" is used in a variety of contexts and with different connotations; it is frequently used with reference to just one aspect, namely the education and training of scholars. Here we define the concept in a broad sense to encompass any activities that enhance the capabilities of individuals, institutions and organisations to contribute to effectively harnessing the advances of science and technology for sustainable development.

The proposed project "Africa wide mapping of STI capacity" aims to provide a comprehensive survey of capacity in STI across the African continent. This project brings together for the first time scientists, networks and institutions in Africa and will contribute to defining common needs and goals, promote dialogue and cooperation for future activities in support of the CPA. In line with the CPA, this project is intended to assist African countries to identify gaps and add value in STI capacity of institutional and human resources to "level the playing field" for future investments in African countries.

The STI capacity landscape is highly heterogeneous in African countries. It is the aim of this project to map existing STI capacity in science, per country, to promote the international dialogue between the North and the South and between the South-South, and devise a proposed framework that would provide a means for countries to address the gaps in STI capacity. This framework will build on the initiatives already developed by the AUC, UNECA, Regional Economic Communities, the UN S&T Cluster, Third World Academy of Sciences, UNESCO Institute of Statistics, and other Institutes and International Organizations. It is also proposed that the framework is "rolling" that countries can update on a yearly basis in order to measure progress in capacity.

### ***Developing an STI Outlook***

This proposed project is fully in line with the recommendations of the AMCOST meeting of 2003, calling for the "urgency of building the continent's capacities to harness, apply and develop science and technology in order to eradicate poverty, fight diseases, stem environmental degradation and improve economic competitiveness".

This project will create an outlook of STI mapping for opportunities for sustainable growth, help create knowledge management in STI and provide governments with the necessary tools and indicators to link the scientific knowledge output to existing policies.

It is only through mapping the STI landscape, that the generation of scientific and technical knowledge can be harnessed through effective STI policies pertaining to the development and application of science and technology. The invaluable information arising from this project will provide the Outlook for the African Observatory on Science and Technology.

The submitted non-exhaustive capacity mapping project focuses on what the respective regions in Africa consider as promising approaches to build capacity in science. All Parties need to build capacity and strengthen institutions in order to meet the evolving demands of the advancement of science and technology and recognises that this represents a major challenge for developing countries and countries with economies in transition. It is essential to identify the needs, existing capacities and capacity building activities and to come forward with examples for what the African countries consider as best practice in building capacity in science.

***Role of the African Observatory for Science Technology and Innovation (AOSTI)***

One of the major roles of the AOSTI will be to inform decision makers and various stakeholders about the state of research, development and innovation (RD and I) and to follow the evolution of the national systems of research and innovation and measure the impact of STI policies. To this end it will develop and offer various tools to be used for strategic thinking on D&T systems and will contribute to the evaluation of corresponding policies:

- producing regular reliable statistics as well as reproducible indicators enabling international comparisons of resources (input) and production (output) in the field of STI and impact of policies
- keeping an inventory of the main competent resources in matters of STI in both the academic and public/private sectors.

**3. Timeframe:**

Estimated Duration	3-4 years	Planned Start	As soon as funds are made available
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**4. Objectives**

Overall Goal:

*Description of overall goal*

- To provide a common ***African framework on existing STI capacity in sustainable database housed in an African STI Observatory.***

To be effective, science policy based measures and interventions should be evidence based, comprehensive and integrated. As has been stated above, although there is a considerable evidence base for effective policy, there is a disproportionate lack of African based research to inform policy. The overall strategy of this project is to fill this research gap by creating an Africa wide mapping of STI capacity.

- This project will create an outlook of STI mapping for opportunities for sustainable growth, help create knowledge management in STI and provide governments with the necessary tools and indicators to link the scientific knowledge output to existing policies.

Objectives in detail:

No.	Description of objective
1	To contribute to <b>S&amp;T development</b> of the continent through accurate analysis of the ongoing situation and subsequent actions in a "needs based" approach.
2	<b>Develop a compendium of information relating to the STI capacity for each of the 54 African Member States</b> Through a literature review in close collaboration with TWAS, African Academies Sciences, National Research Institutions, Higher Education Institutions, Research networks and the AUC document the <b><i>existing STI capacity</i></b> across the African continent considering all aspects related to <b><i>scientific knowledge production</i></b>
3	To examine the impact of <b><i>existing infrastructures</i></b> on young African scientists To identify the <b><i>STI environments</i></b> conducive to scientific research and learning through best practices
4	To develop broad recommendations based on best practices for building a threshold level of STI capacity in Africa to support sustainable development To be further used to support the establishment of research centers, promote integration of S&T into the national development plans promote sharing of experiences, develop networks
5	To analyze the <b><i>STI capacity and policy interactions</i></b> and their impact on societal needs and the implementation of the CPA
6	To develop tools and a common methodology for STI data collection and validation for the African continent and provide the input to the African Observatory.
7	This Africa wide mapping will be used as a resource in implementing the CPA in collaboration with the AUC/NEPAD and African governments.

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost (\$)
1	Literature Review, collation of existing information	<p>- In a first analysis, the state of the art will be determined with existing data in close cooperation with UIS, TWAS, Academies of Sciences, Ministries, Research Institutions, REC's, UNECA, AUC etc.</p> <p>- The collated data will then be presented to a first regional meeting aimed at developing the common methodology and tools for data collection. The analysis of these research results will first be carried out for each country before proceeding further. This will take place at three levels: (a) institutional policy content and implementation (b) research infrastructure analysis: enabling scientific environments such as networks, regional and sub regional dimension etc.</p> <p>-This database will then be built upon with newly collected information, through a harmonized procedure for all the 53 countries.</p>	1	<p>159 0000</p> <p>800 000</p> <p>50 000</p>
2	Development of a theoretical framework and research tools	Analytical framework/harmonization Development of tools tools for data collection, data base, Final Research tools for qualitative study and review records	1	250 000

3	Development of network	Develop network Teams established All organizations involved contacted Recruitment process (53 MS)	1	1367400
4	Capacity building of network	Regional training Monitoring and evaluation	1	75000
5	STI Mapping, Country Case Studies for 53 MS	Collation of all existing data Review records Collection of new data and indicators Preliminary version of country case study	1	2332000
6	Cross-Country analysis, dissemination of preliminary research results	First regional workshop - tools analysis Five regional dissemination workshops held Finalise country case study Develop cross country analysis Tools analysis	1	880000
7	Dissemination	Development of dissemination research results strategy Evaluation of the study Reports of the mapping exercise International conference Validation	1	1086000
8	Quality Control	Develop strategy for internal quality control of data Monitoring and evaluation mechanism developed Reports REviews	1	144000
9	Management	Establish management board/committee Development of a project implementation agreement Establishment of a project management committee (UNESCO HQ + 5RECs) Trimestrial action plans Use of AUC website : communication Reporting to the donor Annual report and financial statement	1	1600000

10	Management of the National Research and Innovation system (NRIS) for 53 MS	The following issues will be addressed: improving an understanding of the NRIS and their performance; characterization, understanding, shared knowledge base; conception of relevant indicators to characterize and monitor the functioning/performance of NRIS; management practices; scientific and academic personnel policy; processes for identifying priority areas and orienting national capabilities; building S&T poles and centers of excellence; university-industry linkages; NRIS assessment activities; characterization of the NRIS of a country; recommendations for improving the NRIS; Strategic watch and foresight on S&T development	1	200000
11	Preparation of protocols for data collection, design and piloting of appropriate instruments		1	100000
		<b>GRAND TOTAL</b>		<b>10,474, 400</b>

## 6. Expected results

Among the expected results, the following can be cited:

- develop a compendium of information relating to the STI capacity for all 54 African Member States
- to develop an easily accessible African Observatory as an updated database with existing information on STI
- to develop broad recommendations based on best practices for building a threshold level of STI capacity in Africa to support sustainable development
- to be further used to support the establishment of research centers, promote integration of S&T into the national development plans, promote sharing of experiences, develop and promote STI networks
- the project will result in the strengthened implementation of better evidence based policy, that can serve to enhance social cohesion and thereby contributing to higher productivity and a sustainable economic development in the African States, in line with the objectives set out in the CPA and Addis Declaration.
- to be used as a resource in implementing the CPA in collaboration with the

AUC/NEPAD and African governments.

**Finally, the AOSTI will produce:**

- Indicators of STI in Africa mainly input and output indicators
- Inventory of Africa R&D resources
- Adapted analysis studies.

The AOSTI will constitute a reliable source of information and will produce all data regularly requested by African governments, International Organizations and others.

## **7. Performance Indicators**

Indicator 1:

Initial Literature review, state of the art collated for the 53 MS on existing STI capacity

Indicator 2:

Development of a common methodology, analytical tools and guidelines on STI data collection and management: preparation of protocols for data collection

Indicator 3:

Structure in place to sustain and expand STI data collection  
Develop a database for collection, analyses and management

Indicator 4:

Use of tools for validating data collection, refining data collected in indicator 1. Capacity building increased in STI data collection and analyses  
Train at least 2 researchers per country (108) per year

Indicator 5:

Reports of individual national country STI analyses and mapping produced and validated

Indicator 6:

Cross country analyses reports produced

Indicator 7:

Effective partnerships established with all National Research Systems

## 8. Risk Factors and Mitigation Measures

### 1. Obstacle in data collation

As this research will take a comparative approach, issues concerning coordination across countries, the usage of a minimum data set for comparative analysis and a common explanatory framework need to be further developed. Data on STI capacity is scattered between national, regional and international databanks. This may not be so easy to gather into a first collation of data

**RISK:** Medium

Proposed Actions to minimize risk factor:

To enhance the feasibility to share and produce a common approach to compare results and analyse organisation issues, international workshops will be organised every 6 months and close communication will be kept, by different means. All partners will be made aware of the advantages of a single database on existing STI capacity and the contribution to the economic development of the country and the continent. UNESCO will use its 22 field offices in Africa to coordinate the project.

### 2. Harmonization of data collection

Harmonization of data collection using a common methodology and tools for a highly heterogenous STI landscape in Africa. In order to have an impact on institutional change, practical policy, organisational and analytical implications need to be derived from the investigation. To enhance feasibility, policy makers are from the beginning involved in the project and close collaboration with relevant stakeholders will be established.

**RISK:** Medium

Proposed Actions to minimize risk factor:

Capacity building in the use and interpretation of validated data is compulsory. We will train the participants through regional and national workshops on the use of STI indicators. We will also work closely with the UNESCO Institute for Statistics to provide the necessary training.

### 3. Sustaining the Outlook

Sustaining a technical workforce to maintain the online database.  
A well trained workforce to be recruited to update and manage the database or STI Outlook.

**RISK: Medium**

Proposed Actions to minimize risk factor:

Every Member State has an Ambassador to UNESCO and a National Commission based in the country. UNESCO will use its convening power to raise awareness of the potential of the STI Outlook in contributing to socio-economic development. As a member of the Bureau of AMCOST, UNESCO can also obtain the support from the Ministers of Science and Technology to sustain use of the Outlook.

#### 4. Other factors

Finally, although the methods and tools proposed in this study have been widely used and validated, the following factors are necessary for its success: i) relative political stability across the research process; ii) co-operation with relevant stakeholders to continue unimpeded; iii) that access to policy documents, institutional records and actors is not hindered or rejected; iv) that the countries selected for qualitative and quantitative study are willing to participate; and v) that institutions selected for investigation can be located.

**RISK: Medium**

### 9. Implementation Arrangements

The African Union Commission (AUC) will act as the project coordinator. UNESCO will act as the implementation Agency in agreement with the AUC and the European Commission (EC). UNESCO will implement via its program specialists in science based in the extensive field offices in Africa and other UN Agencies. UNESCO is the coordinator for the UN Science and Technology Cluster in support of the AUC/CPA implementation in Africa. UNESCO is working closely with the Regional Economic Communities and national Commissions to UNESCO. Personnel already engaged at UNESCO have extensive experience in managing projects for the EC and in working in Africa.

### 10. Monitoring and Evaluation

It will be in line with procedures agreed between the AU and the partners.

Briefly, it will be necessary :

- to select the appropriate evaluation methodology based on well established models
- to monitor progress on content against the project work plan and to make recommendations for appropriate action if deviations are observed
- to evaluate the measure of success of the project against predetermined criteria at the end of the project, including the assessment of the quality and usability of the project deliverables.

The evaluation data will be collected and analysed throughout the life of the research project and will be benchmarked against the project work plan. The evaluation process foreseen in WP8 will provide added value to the project and will form an integral part of the project management. The evaluation model to be developed and used considers criteria on parameters such as data accuracy and reliability, users' requirements, organizational efficiency, etc The project evaluation plan will refer to the project plan and objectives in order to define items for review, the type of review and responsibilities for their assessment. It will include the review of intermediate results, the assessment of data collection methodologies, problem reporting and the development of contingency plans

## **Section 4: Capacity Building at Thematic Level**

### **Projects**

1. Water and food security in the Nile basin
2. Building Africa's Scientific and Institutional Capacity (BASIC) in Agriculture and Natural Resource Management
3. Harnessing Biotechnology for the Advancement of African Agriculture
4. African Pole of Excellence on Desertification and Forestry
5. African Union Initiative on Climate Change (African Institute on Climate Change –AICC)



# **WATER AND FOOD SECURITY IN THE NILE BASIN**

## WATER AND FOOD SECURITY IN THE NILE BASIN

### 1. Background

The Nile Basin covers 3.1 million km<sup>2</sup> and includes some of the poorest countries in the world.

In 1990 the human population in the basin was estimated to be 160 million and projected to increase to 300 million by 2010.

Agriculture is the economic mainstay in most African countries, contributing 20-30% of gross domestic product (GDP) in sub-Saharan Africa and 55% of the total value of African exports. In most African countries, farming depends entirely on the quality of the rainy season—a situation that makes Africa particularly vulnerable to climate change.

Most of the countries in the Nile Basin are classified as food insecure (FAO, 1998). Food security is threatened either by demographic growth or by a shortage of land or water, or both, and a limited capacity to absorb climatic changes shocks such as drought and floods.

Increased droughts could seriously impact the availability of food, as in the Horn of Africa and Southern Africa during the 1980s and 1990s. Although adaptation options, including traditional coping strategies, theoretically are available, in practice the human, infrastructural, and economic response capacity to effect timely response actions may well be beyond the economic means of some countries. The evidence of climate change at global and regional scale has been confirmed in several Reports of Intergovernmental Panel on Climate Changes during the last years (IPCC, 2001; IPCC, 2007).

To provide the minimum acceptable level of food security, food availability in the Basin would need to increase by 35-50% overall. In the short-term trade and food assistance can be used to ensure food security, but, in the medium and long-term, measures are expected to include agricultural development of the poorest sections of society and fostering production and trade in food commodities within the Nile Basin.

Water scarcity is essentially the result of demographic growth and environmental degradation of the water resource base. Increasing water scarcity is becoming an overall critical issue in the Nile Basin, seriously affecting food security. Opportunities for water saving have to be clearly identified either directly in terms of efficient agricultural water use, or through changes in agronomic practices and alternative economic activities, considering both benefits and costs, to establish viable trade-offs for win-win solutions. Substantial water savings together with overall efficient utilization can only happen as a result of trans-boundary river basin cooperation. For optimal use of available resources, an accurate assessment of irrigation potentials is necessary. Currently, however, assessments are based upon aggregated country data, which leads to discrepancies. Harmonized data on the Basin's water resources is an essential parameter for a data – supported dialogue on agricultural development. Equally, there is a need for consistent cost and benefit data for irrigation investments costs and other water uses in the Nile

Basin, as only limited data are currently available.

Namely traditional engineering attempting to get more water is now recognised as short sighted and insufficient. Adaptation to water scarcity can include improved end-use efficiency through demand management measures (producing more with less water) and to a degree, improved allocative efficiency (producing higher economic values from available water resources).

Re-allocation i.e. releasing water from agriculture and replacing local agricultural production with imports would carry considerable political cost. Imports of “virtual” water through food imports could have negative social and economic consequences and might not be acceptable or even financially viable to the Nile Basin economics in the light of widening trade deficits and food distribution constraints. There are also problems of income, employment, food and social security which to a large extent, depend on the considerable national subsistence farming sectors.

In a transboundary context, agriculture, as the main consumptive user, is critical to the conservation of land and water, and the key to saving and releasing water for actual and future potential and alternative demands in all sectors. However, options and scenarios to be implemented, they need to be framed with clear and agreed objectives that are consistent at basin and sub-basin levels. Equally, the measures need to be critically adapted to social, institutional and economic limitations and realities at the national level.

## **2. Project Description**

This project will strengthen the capacity in science and technology in order to cope with food security problems while promoting sustainable management of land and water resources in a selected river basin in Africa.

The specific activity will be:

To analyze the integration of different interactions between climate and demographic changes at both river basin and sub-basin scale by means of water availability and demand including also food requirements and ability for their satisfaction. In this context, the areas (sub-basins) of potential risks by means of water and food shortage will be deeply analyzed in order to determine the potential consequences; furthermore:

- Integrated land and water management strategies (addressing socio-economic and environmental issues related to food pricing, human settlement, ecosystem management, deforestation, desertification, soil fertility and local biodiversity) able to cope with water and food shortage in

the region determined;

- Specific land and water management practices and new technologies and tools addressing water and food shortage in the regions identified and implemented;
- Regulations controlling national and international trading, food markets and taxes modified
- Awareness, dissemination and promotion of the detected strategies and practices at local, national and regional scale through the of the best management practices, workshops, training courses, etc. will be implemented;
- Having a successful 10 pilot farms in Nile basin countries that could be a vivid example for good practices in agriculture.

These objectives could be successfully achieved through multilateral cooperation and integration in the Nile Basin Region through a strong well experienced institution within the Nile basin countries capable of promoting means of cooperation integration and knowledge transfer to achieve food and water security, and climate change adaptation through land and water management in some selected pilot areas. This institution will work closely with international organizations concerned with climate, water, food and agriculture e.g. FAO, WMO.

**3. Timeframe:**

Estimated Duration	4yrs	Planned Start	As soon as funds are available
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**4. Objectives**

*Major Objective :*

- To provide locally relevant solutions through scientific research and research related activities to cope with food security problems while promoting sustainable management of land and water resources in the Nile basin.

In order to fulfil this objective, the programme will focus on the following:

4. **Identifying and analysing alternative policies** to improve food production and to sustain the natural resources (land and water) that support agriculture, in the Nile basin as an example, in integration with agro ecosystem management, environment preservation and biodiversity conservation.
5. **Strengthening capacities of institutions** and agents involved in food policy research and analyses and providing policy communications and facilitating dialogue to inform and improve the design and implementation of both water management strategies and food policies among the stakeholders involved in the process as well as in/and among African countries.
6. **To develop and analyse the scenarios** of different interactions between climate and demographic changes at both river basin and sub-basin scale by means of water availability and demand including also food requirements and ability for their satisfaction (example area Nile Basin).
7. **To investigate and prioritise the sustainable** land and water management strategies (including socio-economic and environmental issues) able to cope with water and food shortage in the region and the applicability of new technologies and tools that could cope with water and food shortage in the regions.
8. **To set up strategies and policies** to improve institutional performance and build capacity in new and emerging areas of science and technology.
9. **To create awareness and to promote** those strategies and practices at local, national and regional scale through the dissemination of the best management practices, workshops, training courses, etc.
10. **To identify the areas (sub-basins) of potential risks** by means of water and food shortage and to determine the potential consequences.

**The Project will also seek to:**

- Devise packages of options as well as points of entry aimed at improving the food chain production towards food security;
- Identifying actions to spread benefits as broadly as possible, particularly among the poor and food insecure;
- Establishing more targeted approaches to research, focussing on learning from successful experiments and experiences on the ground such as those related to institutional innovations;
- Creating knowledge synergies through increased collaboration among the researchers, more direct integration of capacity building and policy communications into research activities and strategic partnerships to facilitate learning and the transfer and adoption of policy success factors;
- Expanding partnerships to include a wider range of agents such as those involved in pro-poor agricultural innovation processes, the users of policy information, regional economic communities, parliamentaries, leading farmer organizations,

private sector, professional associations, local governments and non-governmental organizations;

- The setting up of new strategies to increase production, particularly in rainfed agriculture through supplementary irrigation, water harvesting and soil management improvement.

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

The foreseen activities include research, demonstration programs, capacity building (both institutional and HRD) and dissemination. They should be integrated through the following main themes:

No	Activity	Description	Deliverables	Priority	Estimated Cost Euro
1	Database and Scenarios development	Upgrade and improve available water and climate information databases through cooperation and data dissemination between Nile Basin Countries	Reliable databases and decision support system capable for providing solutions for different climate change scenarios	1	2,5 million
2	Water balance modeling simulating both water supply and demand	Prepare a number of models that simulate different scenarios of food and water availability	Applicable Climate Water Simulation Models	1	2,5 million
3	Crop productivity and "Water for Food" availability	Collect current information of available water and food resources and quantities	A complete survey for the current status of water availability for food	1	2,5 million
4	Assessment of environmental issues and identification of measures.	Assessment of environmental issues and identification of strategies and planned measures to address them in light of previous studies and strategies tackling the same issues.	A detailed document on environmental and agro ecosystems issues based on previous studies and findings.		1,5 million

5	Integration of results by means of both spatial and time scales	Analysis of collected information in terms of spatial and time scales	Full documentation Of results and outcomes	1	1.5 million
6	Determination of areas with possible food and water shortage and estimate of risk.	<ul style="list-style-type: none"> <li>- Analyzes of options/strategies/ measures/tools to cope with the problems and estimate of possible positive impact.</li> <li>- Analyzes of applicability of specific strategies/options/ measures/tools by means of possible impact, time required for implementation, time of response, social acceptance, economic acceptance – costs, environmental aspects, etc.</li> <li>- Demonstration actions for selected strategies/options/ measures/tools in selected areas and institutions relevant for better governance of resources.</li> </ul>	Full documentation Of results and outcomes	1	2 million €
7	Revision of regulations and policies related to food pricing, marketing and trading	<ul style="list-style-type: none"> <li>- Revision and modification of actual regulations addressing food pricing, marketing and trading</li> </ul>	Regulations revised and modified		1.5million

8	Dissemination creation of awareness	- Training courses in concomitance with demonstration. - Media and organization of workshops, round- tables, seminars, schooling, promoting best strategies/options/measu- res/tools, etc.	Raising awareness	1	2 million €
			<b>TOTAL</b>		16 million

## 6. Expected Results

The foreseen activities include research, demonstration programs, capacity building (both institutional and HRD) and dissemination. They should be integrated to provide the following main outputs:

1. Trans-boundary cooperation and identification of decision making structure to manage and coordinate the different actor chains;
2. Database and Scenarios development with water balance modeling simulating both water supply and demand, including crop productivity and "Water for Food" availability;
3. Integration of results by means of both spatial and time scales;
4. Determination of areas with possible food and water shortage and estimate of risk;
5. Analyses of options/strategies/measures/tools to cope with the problems and estimate of possible positive impact;
6. Analyses of applicability of specific strategies/options/measures/tools by means of possible impact, time required for implementation, time of response, social acceptance, economic acceptance - costs, environmental aspects, etc.;
7. Demonstration of actions and modifications to present regulations/strategies/options/measures/tools in selected areas and relevant institutions for better governance of resources;

8. Training courses in concomitance with demonstration activities in corresponding selected areas/sub-basins;
9. Dissemination-creation of awareness through the media and organization of workshops, round-tables, seminars, schooling, promoting best strategies, options, measures, tools, etc.

## 7. Performance Indicators

Indicator 1:

Transboundary cooperation to realize food and water availability and security achieved

Indicator 2:

Highly trained professionals and capacity building programs undertaken

Indicator 3:

Regulations addressing food pricing, marketing and trading revised and modified

Indicator 4:

Strategies to overcome environmental issues identified and formulated

Indicator 5:

Pilot area determined and good practices applied

Indicator 6:

Adaptation measures to climate change identified and implementation strategies formulated

## 8. Risk Factors and Mitigation Measures

In addition we feel that the overriding purpose for this project is to achieve the 4 major goals. Based on this consideration, we have assessed risks associated with each of these goals as follows:

**GOAL 1:** Develop and analyse the scenarios of different interactions between climate and demographic changes

1)

*Lack of reliable historical data compatible and yielding results in acceptable limits of accuracy especially in modelling and database related work*  
*Risk : High*

*Proposed action(s) to address the risk factor mentioned:*

*Cooperate with international organisations concerned with climatic ,geographic and water resources information (FAO,WMO,AWF,NOAA,UNICEF,UNEP...etc)*

2)

*Consistent coordination and information exchange between Nile basin countries that will provide the possibility of creating an appropriate management for the selected pilot areas.*  
*Risk : medium*

*Proposed action(s) to address the risk factor mentioned:*

*Promote the implementation of MOUs and information exchange protocols previously agreed upon within international organization e.g NBI*

**GOAL 2:** Identify the areas (sub-basins) of potential risks

*The risk of political instability in the region: ongoing conflicts contribute in food and water insecurity.*

*Risk : High*

*Proposed action(s) to address the risk factor mentioned:*

*This will require careful choice of sites of areas of activities and careful ongoing monitoring of the security situation*

**GOAL 3:** Propose, investigate and prioritise the sustainable land and water management strategies

*Risk of insufficient expertise to support the project implementation :there is a limit supply of expertise available in the region*

*Risk : Medium*

*Proposed action(s) to address the risk factor mentioned:*

*Adoption of an approach that focuses strongly on developing local and regional expertise including gender expertise and ensuring the similarity of capacity development among different parties*

**GOAL 4:** Create awareness and promote the strategies and practices at local, national and regional scale

*Insufficient regional management ,technical and institutional capacity to undertake the required objectives and ensure coordination.*

Risk : High

*Proposed action(s) to address the risk factor mentioned:*

- *Partnership with well recognised and qualified organisations from the riparian AU Member States.*
- *Create institutional capacity and leadership that will form the basis for implementations of [project activities through regional learning from study tours, visit exchanges and higher degree scholarships*

### **9. Implementation Arrangements**

The project could be managed and coordinated through the Nile Water Sector in Egypt, in strict coordination with the relevant basin authorities located in AU Member States. An International Scientific Advisory Committee composed of high-level scientists around the world, will serve as advisory board on key scientific elements of the project. The African Union commission (AUC) will serve as the political umbrella, through the department HRST which will oversees and advises on the project implementation, by respecting the technical structure of the African Union.

### **10. Monitoring and Evaluation**

It will be in line with procedures agreed upon between the Nile Water Sector in Egypt, international organisations and development partners.



**BUILDING AFRICA'S SCIENTIFIC  
AND INSTITUTIONAL CAPACITY  
(BASIC)  
IN AGRICULTURE AND NATURAL  
RESOURCE MANAGEMENT**



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**List of abbreviations:**

AAU	Association of African Universities
AGRA	Alliance for a Green Revolution in Africa
AIDS	Acquired Immunodeficiency Syndrome
ANAPE	African Network for Agriculture, Agroforestry and Natural Resources Education
AU	African Union
BASIC	Building Africa's Scientific and Institutional Capacity
CAADP Programme	Comprehensive Africa Agriculture Development
CD	Compact Disc
CGIAR Research	Consultative Group on International Agricultural
CPA Action	(Africa's Science and Technology) Consolidated Plan of
CTA	Centre Technique de Cooperation Agricole et Rurale
CMT	BASIC Component Management Team
COL	Commonwealth of Learning
FAO Nations	Food and Agriculture Organisation of the United
FARA	Forum for Agricultural Research in Africa
GDP	Gross Domestic Product
IAC	Inter-Academy Council
ICRA	International Centre for development oriented Research in Agriculture
IFPRI	International Food Policy Research Institute
HIV	Human immunodeficiency virus
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation
NEPAD	New Partnership for Africa's Development
NGO	Non Governmental Organisation
OECD Development	Organisation of Economic Cooperation and
RAFT Training	ANAPE's Regional Agricultural Forums for
RAILS	Regional Agricultural and Information System
RUFORUM	Regional Universities Forum for strengthening capacity in agriculture
TechMODE	Technology-Mediated Open and Distance Education
UNESCO Organization	United Nations Educational, Scientific and Cultural
US	United States
USB	Universal Serial Bus

WSSD

World Summit on Sustainable Development

## **BUILDING AFRICA'S SCIENTIFIC AND INSTITUTIONAL CAPACITY (BASIC) IN AGRICULTURE AND NATURAL RESOURCE MANAGEMENT**

### **1. Background**

- 1.1 Africa has reduced the number of people living under the US \$ 1 per day poverty line but still has the largest population of ultra poor people living on less than US\$ 0.5 per day. Six percent per annum growth in agricultural production is needed to get ahead of the demographic trends, and it has to be achieved in spite of the impacts of climate change, and HIV and AIDS.
- 1.2 In 2000, about 56% of Africans (431 million people) were totally dependent on agriculture. They accounted for 24% of Africa's GDP and 40% of its foreign exchange earnings. Agriculture is the main generator of savings and tax revenues. Africa's agricultural export earnings in 2000 were worth about US\$ 14.3 billion but with imports ran at US\$18.7 billion. Africa also received 2.8 million tonnes of food aid which was over a quarter of the world total food-aid.
- 1.3 The majority of African farmers are smallholders characterized by persistent low productivity. That not only limits Africa's agricultural exports but, in the face of growing populations, leaves food supply gaps that have to be filled by food aid and imports and also by reduced consumption by the poor. The poor intrinsic performance is aggravated by increasingly frequent disaster-induced emergencies. In 2001, about 28 million people in Africa faced food emergencies, of these 25 million needed both emergency food and agricultural assistance.
- 1.4 Koïchiro Matsura, Director-General of UNESCO, has stated that the lack of a framework for building and sharing scientific and technological capacity is preventing Africa from mobilizing its rich resource<sup>7</sup>. The success of Africa's Science and Technology Consolidated Plan of Action (CPA) and the AU, NEPAD and the UNESCO's comprehensive programme for the establishment and funding of centers of excellence in Africa for implementing the CPA will benefit from having a broad base of excellence in tertiary education upon which to draw.
- 1.5 Effective investment in agricultural development has the potential to produce savings in food aid and imports which would have substantial economic multiplier effects (IFPRI 2002)<sup>8</sup>. This will have to be aimed at improving the productivity of land holdings of between 0.5 and 0.7

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<sup>7</sup> Eighth African Union Summit 22-30 January 2007 Addis Ababa, Ethiopia

<sup>8</sup> IFPRI 2002 Agriculture Drives Economic Growth in Africa. IFPRI Perspectives, Volume 25. International Food Policy Research Institute, Washington DC USA

hectares harvested per person, which require appropriate technologies and policies suited to Africa's unique farming and socio-economic circumstances of *inter alia* poor soils, pests, plant and animal diseases and inadequate infrastructure.

- 1.6 The present food crisis has provided new impetus to African governments and their development partners' to substantially increase funding for agricultural development. However, every major recent report<sup>9</sup>, declarations<sup>10</sup> and resolutions<sup>11</sup> have stressed that there is not sufficient human capacity to generate the breakthrough new knowledge needed to overcome the many pervasive constraints, including barriers to new markets, which are impeding agricultural development<sup>12</sup>.
- 1.7 In recent decades there have been rapid increases in enrolments and in the number of universities offering courses in agriculture and natural resource management but this has not been matched by similar increases in funding and this has compromised the universities ability to maintain their facilities and retain their best staff with negative consequences for educational quality. Agricultural courses no longer inspire students because the courses are not providing the knowledge and skills needed to secure fulfilling careers. Thus the students are predominantly ones who were not accepted by other career choices.
- 1.8 Agricultural courses are too often delivered from outdated, narrowly defined and specialized perspectives. The teaching resources tend to be old and poorly contextualised in the real needs of African smallholders.
- 1.9 The majority of African universities still lack the capacity to develop the essential skills in personal mastery, entrepreneurship, negotiation, conflict resolution, and, organizing and sharing knowledge. In short, **capacity for problem-solving is lacking in most traditional curricula.** Other weaknesses have been identified that impair the capacity of students to cope with the complexities of smallholder systems. For instance in fostering and sustaining institutions such as farmers' cooperatives and community-based organisations and agri-businesses that are essential to rural innovation.
- 1.10 There are several credible donor-funded programmes that support candidates for higher degrees 13 14. However, the poor preparation of

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9 IAC 2004, 'Realising the promise of African Agriculture: Science and technology strategies for improving agricultural productivity and food security in Africa' Inter Academy Council, Amsterdam, The Netherlands.

10 AAU Nairobi 2001, ACP Ministers Cape Town 2003.

11 WSSD Johannesburg 2002, African Heads of States Durban 2002, African Union Sirte 2004.

12 Juma, c. and Serageldin, I. (2007) 'freedom to Innovate: Biotechnology in Africa's development'. A report of the High Level African Panel on Modern Biotechnology. African Union and the New Partnership for Africa's Development (NEPAD. Addis Ababa and Pretoria.

13 e.g. The Regional University Forum for Strengthening Capacity in Agriculture (RUFORUM)

graduates not only affects the majority that enter the industry with first degrees but it also negatively affects the quality of candidates for postgraduate programmes.

1.11 The lack of relevance of the courses, the low morale of faculty and the poor facilities has resulted in a) declining enrolment in agriculture b) inability of agricultural graduates to create or find jobs and c) overall loss of esteem in the agricultural sector. The disconnect between what is happening at the universities and the capacity requirements of the ambitious agricultural development programmes will be increasingly severe and urgent as investment in African agricultural development increases.

**1.12 FARA<sup>15</sup> recognises that for the success and sustainability of CAADP radically new approaches are needed to produce change agents who can make a difference in the lives of hundreds of millions of resource-poor smallholder farmers. This requires revising curricula and pedagogy and the inclusion in national and donor investment plans of consideration for investment in university facilities and in ensuring the competitiveness of faculty conditions of service.**

## 2. Project Description

2.1 This project is based on concepts that were developed at a workshop hosted by the African Union Commission which was attended by over 60 Vice Chancellors and Deans of African universities and representatives of agricultural development agencies and development partners<sup>16</sup>.

2.2 It will make a major contribution to reforming agricultural tertiary curricula and the way and the means by which the universities promote learning to produce effective change agents and entrepreneurs. It will take advantage of modern open-access teaching aids to empower faculty at African universities, especially those that are less well resourced, to provide high quality teaching and training.

2.3 It will enable farmers and other actors to contribute to the development of contextually relevant curricula. It will also enable universities to extend their reach by technology mediate open and distance education, taking advantage of advanced information and communications technologies and FARA's Regional Agricultural and Information System (RAILS).

2.4 The Project is a component of AU-NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP)<sup>17</sup> and its impact will be extended and sustained

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14 e.g., The Alliance for a Green Revolution in Africa (AGRA) support for higher degrees in plant breeding

15 For information on the Forum for Agricultural Research in Africa (FARA) see Annex 3.

<sup>16</sup> BASIC Proposal Development Workshop, 6 –8 September 2004, held at the Commission of the African Union Addis Ababa, Ethiopia, Forum for Agricultural Research in Africa, Accra, Ghana

<sup>17</sup> Comprehensive Africa Agriculture Development Programme , New Partnership for Africa's Development (NEPAD), Midrand South Africa

by ensuring that the requirements for producing the human and institutional capacity that Africa needs for agricultural development in general and for CAADP in particular are taken into account in national and regional planning. It will bring the need to strengthen Africa's capacity to build capacity into the mainstream of agricultural development planning.

- 2.5 The project's overall objective is to enable every African university that offers on or off-campus courses in agriculture and natural resources to improve the relevance of its education and apply high quality education materials and delivery methods to promote learning and produce entrepreneurs and change agents. This is consistent with the African Union's CPA objective of developing quality higher education that produces graduates with the competencies required to drive Africa's economic and social development, and that increasingly enable the continent to rely on its own, substantial human resources, combined with systems that facilitate economic integration, cultural relevance, and mobility of this growing pool of talent across the regions of Africa.<sup>18</sup>
- 2.6 The project will support studies of employers of graduates across whole agricultural value chains to determine areas of deficiencies in the curricula, pedagogy and course materials to help universities determine what changes are required to produce agricultural graduates that fit present and forecast market needs and demands. It will support this by promoting linkages between the universities with value chain actors, including farmers to enable them, and especially women stakeholders amongst them, to contribute to the development, validation and change of curricula to produce contextually relevant graduates.
- 2.7 This project will support the development of open access training resources (for an example visit <http://agtr.ilri.cgiar.org>) which will be accessible to all undergraduate and graduate students at any African university or college with access to the internet or with computers with CD or USB capability.
- 2.8 The training resources will be produced as modules on priority topics developed at selected African universities together with partner universities from Europe<sup>19</sup> the US<sup>20</sup> and capacity building institutions including ICRA<sup>21</sup> contributing pedagogical advances and the African agricultural research community providing up-to-date and contextually appropriate<sup>22</sup> content. These will be validated at the universities at which they are produced with input from subject matter peers in the collaborating universities. They will be produced under Creative Commons Licences in compliance with the applicable national and regional standards set by the relevant authorities in the universities, ministries of education and regional economic communities.

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18 A Strategy to Harmonize Higher Education Programmes in Africa, Meeting of the Bureau of the Conference of Ministers of Education of the African Union (COMEDAF II+), 29-31 May 2007. Addis Ababa, Ethiopia

19 The European network for tropical and sub-tropical agriculture (NATURA)

20 c.f. National Association of State Universities and Land Grant Colleges (NASULGC)

21 International Centre for development oriented Research in Agriculture (ICRA)

22 Consultative Group on International Agricultural Research (CGIAR) Inter-centre Common Interest Group on Capacity Strengthening

- 2.9 The training resources will include instructions on pedagogical best practices in their applications, but to accelerate uptake and ensure they are applied properly, they will be introduced to partner universities by the teams that develop them.
- 2.10 For universities and colleges to reach out to students who cannot participate in on-campus courses the resources will be adapted into Technology-Mediated Open and Distance Education (TechMODE) formats taking advantage of FARA's Regional Agricultural Information and Learning System (RAILS) and its associated sub-regional and national systems for their delivery.
- 2.11 The selection of priority topics will take account of the highest priority capacity requirements for the implementation of CAADP. Many past consultations have indicated that these will *inter alia* include training resources for systems (soft) skills, agri-business, risk and uncertainty (including impacts of climate change and globalisation), use of information and communications technologies (ICTs) in agricultural extension and management, and biosciences and biosafety.
- 2.12 Recognising that African universities, especially the less well resourced and remote ones, have shortages of suitably qualified lecturers the project will support MSc and PhD training for university faculty who are expected to use the open access training resources produced by the project.
- 2.13 For the universities to be able to retain their best staff and provide high quality teaching and research opportunities many of them require improved terms of service and upgraded facilities.
- 2.14 This project will approach the issues of remuneration and facilities by ensuring that the human and institutional capacity needs for implementing the Comprehensive Africa Agriculture Development Programme (CAADP) are taken into account in the CAADP stock taking and roundtable processes. That will be designed to ensure that the required capacity will not, as at present, simply be presumed to be available and that the necessary investment will be incorporated into the CAADP country and regional compacts and financing packages.
- 2.15 The input into CAADP process will be provided by a Capacity Strengthening Expert Reference Resource comprised of one expert drawn from the universities in each country that engages in the CAADP roundtable processes who will be fully briefed and oriented on CAADP and supported to engage in those processes.
- 2.16 This combination of activities will enable the Forum for Agricultural Research in Africa (FARA) to more fully meet its mandate from the African Union and AU-NEPAD to be the Lead Institution for CAADP Pillar IV, which encompasses agricultural research and technology dissemination and adoption with capacity strengthening as a vital cross cutting issue.

### **Redressing gender inequality**

- 2.17 Women comprise about 70% of total African agricultural labour and produce about 80 percent of the food. The Food and Agriculture Organisation of the United Nations (FAO) estimates that 31% rural African households are headed by women because men migrate to cities for wage labour. However women have less access to basic

technologies and other resources. They also own less land and what they own it tends to be smaller and located in more marginal areas. They have less access than men to credit, which limits their ability to purchase seeds, fertilizers and other inputs needed to adopt new farming techniques. This gender imbalance, which is exacerbated by the lower education level of women, has important negative repercussions for economic efficiency and of course equity.

2.18 The gender insensitivity in policies and services is a reflection of the fact that women are under represented in African universities, both in faculty and as students and therefore in public and private agricultural careers, which affects the quality of advice and services that the majority women farmers receive. At the undergraduate level, women form roughly 15% of the student population. At postgraduate level the percentage has risen to about 30% because of affirmative action, but this statistic masks a continuing imbalance because much of the expansion is due to the inclusion of social sciences in agricultural programmes. The imbalance has to be addressed by making careers in universities and in agriculture more attractive and better suited to women.

2.19 This project will mainstream the issues of equality for women in agricultural science, technology and policy making from discussion<sup>23</sup> in national and regional planning and demonstrating its feasibility and the enormous benefit in terms of poverty alleviation and wealth creation it can generate.

**3. Timeframe:**

Estimated Duration	5 years	Planned Start	2009
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23 CTA,RUFORUM,FARA 2006 Congress on Women in Science for Food and Nutrition Security in Africa, 3-7 July, Entebbe, Uganda, CTA, The Netherlands

#### 4. Objectives

*Overall Goal:*

4.1 The project's overall objective is to enable every African university that offers on or off-campus courses in agriculture and natural resources to improve the relevance of its education and apply high quality education materials and delivery methods to promote learning and produce entrepreneurs and change agents

*Description of overall goal:*

4.2 The project will pilot and advance a radically new approach to capacity building with an emphasis on promoting learning supported by open access training resources that are up-to-date and contextually appropriate and designed to prepare the graduates for the actual circumstances in which they will find employment or be self employed. These will be primarily aimed at strengthening undergraduate training but the pilot product indicates that they will also make important contribution to training and research for higher degrees.

4.3 It will enable universities to engage actors across the agricultural value chains in setting their curricula, with particular attention to the needs of women, in all aspects of agriculture, e.g., farming, trading, teaching, policy and research.

4.4 It will provide universities with open access teaching and training resources that will assure prospective students that the training they receive will be stimulating, up-to-date and relevant to the contexts in which they will seek employment, or self employment.

4.5 These materials will be adapted for use in distance education to increase the reach of the universities in formal and informal courses

4.6 Universities and colleges that apply the new approaches and materials will have the opportunity to up-grade faculty members subject matter and teaching skills through MSc and PhD training. This will apply especially to institutions that are not currently favoured by other donor-supported schemes for postgraduate training and, other things being equal, women candidates will be favoured.

4.7 Recognising that it is a national responsibility to maintain facilities in which effective teaching and research can be conducted and to provide terms of service that will retain the highest calibre professionals this project will ensure that the requirements for producing the human capacity needed for African agricultural development, and in particular for the implementation of the ambitious CAADP programmes, will be properly factored into national CAADP compacts and financing packages and educational development programmes.

4.8 FARA chairs the CAADP Pillar IV Expert Reference Group that provides technical and policy backstopping to national and regional stakeholder institutions involved in the development of CAADP Compacts. Funding from this project will enable the addition of capacity strengthening experts as resource persons to the Expert Reference Group. This will ensure that capacity gaps and needs will feature in national planning from initial stocktaking through to the signing of compacts for the whole CAADP agenda between governments and development partners.

**Objectives in detail:**

<b>No.</b>	<b>Description of objective</b>
1	The project will break the current approach to strengthening African human capacity which results in some students, at some universities being strengthened in some subject areas. It is an acknowledge right of every African undergraduate to receive world class training. This project makes that a pragmatic possibility by using modern pedagogical and technology mediated approaches to promoting learning. It also responds to the need to reverse decades of under attention to undergraduate education despite the fact that this threatens the quality of actors across the agricultural industry including extension agents and college teachers as well as candidates for higher degrees.
2	The objective of reorienting Africa’s tertiary agricultural education to produce entrepreneurs and change agents is set to ensure that African graduates will not only be well qualified in their subject areas but that they will also be equipped to function effectively in modern multi-disciplinary, multi-institutional and multi-stakeholder innovation systems. It will enable them to assess where they can contribute, negotiate for the resources they need while respecting the needs of others, resolve conflicts and to make themselves understood by highly diverse stakeholders with which they will interact.
3	The object of producing a range of open-access teaching resources, from which universities can select those most appropriate for the ecological and economic circumstances in which their graduates are employed, is to improve the quality of the education received by their students and in particular to empower the lecturers with best practices in pedagogy and uptodate course materials in formats that allow them to focus on promoting learning rather than memorising. This will produce graduates who are problem solvers and job creators rather than job seekers.
3	The objective of internalising capacity strengthening needs and advances in national and regional development strategies is to raise awareness and advocate for greater investment in university remuneration and facilities by African governments. It is a practical response to resolving the problems and issues related to Africa’s capacity to build capacity in agriculture that have been highlighted in numerous reports including the World Bank’s 2007 study of African tertiary agricultural training entitled Cultivating Knowledge to Grow African Agriculture.

## 5. Activities and Estimated Cost

No.	Activity	Description	Priority	Estimated Cost <sup>24</sup> (Euro ,000)
1	<b>Off campus courses</b>			1,600
	<p><b>Result 1:</b> The universities will extend their reach and inclusiveness with formal and informal distance education.</p> <p>The teaching and learning resources developed for on campus use will be appropriately adapted for technology mediated open and distance education (TechMODE).</p>	The number and quality of formal and informal courses offered by African universities to extend their teaching to more potential students will be raised by using open-access resources adapted for TechMODE.	2	
2	<b>Setting up curricula</b>			1,800
	<p><b>Result 2.a</b> The prioritization of the teaching and training resources to be developed will involve critical review of curricula reviews aided by the outcome of university tracer studies, employer surveys and gap analyses.</p>	Curricula will be reviewed with the aim of producing graduates well prepared for the available employment including self employment.	1	
	<p><b>Result 2.b.</b> The development of open access teaching and training resources will expose current curricula weaknesses and accelerate pedagogical advances in African tertiary agricultural education.</p> <p>MSc and PhD training opportunities will be provided for university lecturers who will deliver the courses</p>	<p>Faculty members involved in the multi-institutional collaborative development of to up-to-date and contextually appropriate open access training resources will be better able to assess and spearhead changes in curricula.</p> <p>The competence of faculty staff will be upgraded through postgraduate training.</p>	1	
	<p><b>Result 2.c:</b> Teaching content and practice at ANAFE member universities will improve as an outcome of training in the use of the open-access materials and in best practices in utilizing them as aids to promote learning</p>	Lecturers at network member universities will be exposed to the benefits of electronically mediated teaching materials and how they can use them to improve the delivery of courses and also focus on promoting learning rather than on transferring information to the students.	1	

<sup>24</sup> Excluding governance, coordination and overheads

3	<b>Open access teaching and training resources</b>			2,860
3	<p><b>Result 3.a.</b> Open access learning resources will be produced that are up-to-date and contextually appropriate to the different technical, market and socio-economic environments of African agricultural producers.</p> <p>The electronic application of these resources will be supported by software applications for supervisor and student interaction and progress monitoring.</p>	<p>Sets of open-access teaching resources will become available to universities across Africa to enable them to provide thorough and comprehensive courses. This will be a special boon to more remote and less well resourced universities.</p> <p>There will be a range of resources to enable the universities to select those most appropriate for the particular ecological and economic circumstances in which their graduates will be employed.</p>	1	
4	<b>Capacity building in CAADP</b>			1,115
	<b>Result 4.a:</b> CAADP compacts and financing packages will be formulated with due cognisance of capacity availability and what is needed to address human and institutional capacity deficits that would compromise the success of CAADP programmes and agricultural development generally.	Formation, orientation and mobilising a Capacity Strengthening Expert Reference Group responsible to FARA, as the Lead Institution for CAADP Pillar IV, with one member from each country nominated by the National Agricultural Forums for Training (NAFTs) committed to the CAADP roundtable processes.	1	
	<b>Result 4.b:</b> Agriculture regains its status as a career of choice amongst greater percentages of candidates for degree courses.	The combination of revitalised lecturers who are confident that they are teaching the right things in the right ways, the access to modern learning aids and especially the greater assurance of gainful employment will restore the interest of students	2	
	<b>Result 4.c:</b> Universities contributing much more effectively to CAADP and the achievement of the MDGs, especially MDG 1 relating to hunger and food security and MDG 7 relating to environmental conservation.	Universities will be better able to respond to demands to contribute to CAADP planning and also by contributing directly to achieving CAADP objectives by developing and validating new technologies, and market and policy options.	2	
5	<b>Monitoring and evaluation</b>		2	1,004

	<p><b>Result 5:</b> Monitoring and Evaluation will be a vital integral part of the programme. The approaches and methods will comply with the requirements and recommendations of the African Union Commission and donors.</p>	<p>The monitoring and evaluation will provide timely advice and redirection for the programme and evidence for the development of improved follow up phases. It will also provide independent reports and assessments for FARA's management, investors and stakeholders.</p>	1	
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## 6. Expected results

1. The universities extending their reach and inclusiveness with formal and informal distance education.
2. A range of open-access teaching resources in use at universities across Africa, including the more remote and less well resourced ones, from which they select those most appropriate for the ecological and economic circumstances in which their graduates are employed.
3. Lecturers at ANAFE member universities trained in the use of the open-access materials and in best practices in utilising them as aids to promote learning
4. Lecturers, particularly those at remote and less well resourced universities, technically competent in their subject areas and more skilled in promoting learning.
5. Agriculture becomes a career of choice amongst greater percentages of candidates for degree courses.
6. CAADP compacts and financing packages formulated with due cognisance of capacity availability and what is needed to address human and institutional capacity deficits that would compromise the success of CAADP programmes and agricultural development generally.

## 7. Performance Indicators

Indicator 1:

The number of distance courses and the numbers of students that participate and the extent of their academic and technical achievements

Indicator 2:

Number and quality of formal and informal courses offered by African universities using open-access resources adapted for Technology Mediated Open and Distance Education (TechMODE) and the number and grades of graduates

Indicator 3:

The number and gender of MSc and PhD gained graduates amongst faculty specifically to enhance use of open-access training resources

Indicator 4

The quality of fit for purpose of graduates, the satisfaction of their employers and the progress of their careers

Indicator 4:

The number and quality of open access training resources available and the number of courses in which they are routinely used and faculty preference for using open-them and students' satisfaction ratings compared with students having traditional lectures and reading materials

Indicator 5:

The percentage of prospective students who rank agriculture as their first or second choice and ratings of quality and suitability of graduates by employers

Indicator 6:

The percentage of high caliber staff that universities recruit and retain and their assessments of job satisfaction and ability to teach and conduct research effectively

Indicator 7:

The availability of human capacity for agricultural research and development and the extent to which universities are called upon to contribute to CAADP and the number and impact of the innovations related to agricultural development that they produce

## 8. Risk Factors and Mitigation Measures

### *Brief Description of Risk Factor mentioned*

1.

There is a risk that universities might not be willing to change their curricula even though, in the consultation on this project, they have professed to welcome support institutional and curricula changes.

**RISK:** Low

Proposed Actions to minimize risk factor:

The concepts for this project originated in a meeting of deans of agriculture in Eastern Africa and were firmed up at a conference involving over 60 Vice Chancellors and Deans held in September 2004. Consultations have been held with the tertiary agricultural education networks and with many university faculty members to assure that that the proposals were welcomed and not duplicative. This process has led to significant evolution in the understanding of the principles being advocated and the modus operandi.

2.

### *Brief Description of Risk Factor mentioned*

There is a risk that some universities will prefer to stay with talk and chalk methods of teaching that emphasis the memorisation of facts rather than the promotion of learning.

**RISK:** Medium

Proposed Actions to minimize risk factor:

It is unlikely that lectures and faculty boards will wish to resist pressure from students for more modern pedagogical approaches and course materials that will significantly enhance their career prospects. The provision for awareness raising and orientation of the modules will assure that both the lecturers and the students will be aware of the pedagogical advances that become available through this project.

3.

### *Brief Description of Risk Factor mentioned*

There is a risk that numbers of universities will have neither access to adequate internet nor computers with USB or CD facilities to be able to take full advantage of the open-access training resources

**RISK:** High in certain countries but improvements in connectivity are accelerating

Proposed Actions to minimize risk factor:

The role out of second and third generation telephony and the significant on-going investment in fibre optic cabling by African governments will make this a progressively less important factor. Countries such as Niger with very poor connectivity are likely to be increasingly aware of the differential progress being made in neighbouring countries such as Mali where connectivity is improving geometrically.

4.

Brief Description of Risk Factor mentioned

There is a risk that some universities will not have sufficient or sufficiently trained lecturers to optimally utilise the open access resources produced by the project

**RISK:** Medium

Proposed Actions to minimize risk factor:

To counter this risk provision is made for providing MSc and PhD training for key staff, especially from remote and less well resourced universities.

## 9. Implementation Arrangements

- 9.1 FARA's Executive Director will have overall responsibility for the project.
- 9.2 Oversight of the project will be provided by the Programme Committee of FARA's Executive Board.
- 9.3 The project will be coordinated by the FARA Director for Capacity Strengthening who will also provide leadership for the CAADP Pillar IV Capacity Strengthening Expert Reference Group.
- 9.4 The ANAFE's Executive Secretary will be responsible for the development, dissemination and internalisation of the open access training resources<sup>25</sup>.
- 9.5 Selection of African host universities will be a function of ANAFE
- 9.6 Selection of collaborating partner universities will be a function of NATURA and NASULGC
- 9.7 Selection of the collaborating agricultural research institutions will be a function of the CGIAR Inter-centre Common Interest in Capacity Strengthening.

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<sup>25</sup> For more information on ANAFE see annex 4

## **10. Monitoring and Evaluation**

The monitoring and evaluation systems, methods and approaches will comply with procedures agreed with the African Union Commission and the donors.

### **Self Assessment**

- 10.1 The project's monitoring and evaluation (M&E) will be independent of the project's management. It will be conducted as part of the integrated M&E system established by NEPAD, the regional economic communities, the sub regional organisations and FARA. One impact assessment methodology will be outcome mapping<sup>26</sup>. The expected outcomes and the boundary partners will be identified in advance as part of the proposal development process.
- 10.2 The baseline for monitoring will be established by the studies of university graduates in employment and in CAADP stocktaking exercises. Empirical data will be collected on the incremental funding invested in new approaches to capacity strengthening, the number of students benefiting at the different graduation levels, e.g. diploma, BSc, MSc, PhD. The stocktaking, monitoring and evaluation will include gender differentiated tracking of graduates to learn how well they were prepared for where their careers take them.
- 10.3 With care to guard against undue attribution, national agricultural productivity, rural livelihood, and price data for staple foods for low income consumers will be used to compare effects in countries with different rates of adoption of the project's products and outcomes.

### **External assessment**

- 10.4 In keeping with FARA's established practice, the Commission of the African Union and the projects donors will conduct periodic external evaluations conducted by whom and whenever they consider appropriate. They will also be welcome to send observers to any project activity including meetings of FARA's Programme Committee.

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<sup>26</sup> Earl, S., Carden, F., and Smutylo, T. 2001 Outcome mapping: Building learning and Reflection into Development Programmes. International Development Research Centre, Ottawa, Canada

## F. Project Budget Spreadsheet Euro (,000)

Item	Expense	Unit cost per annum	Unit measure	No of Units	Year 1	Year 2	Year 3	Year 4	Year 5	Project	sub total	%
<b>Resource Persons</b>	Fees	0.30	Days	14.00	4.20	4.20	4.20	4.20	4.20	21		
	Travel Tickets	1.45	Trip	4.00	5.80	5.80	5.80	5.80	5.80	29		
	Per Diem	0.15	Days	14.00	2.10	2.10	2.10	2.10	2.10	11		
<b>Governance</b>	Contribution to FARA Board	3.00	No of meetings	2.00	6.00	6.00	6.00	6.00	6.00	30		
											91	1
<b>Project Coordination</b>	FARA Op. costs	45.00	Lumpsum	1.00	45.00	45.00	45.00	45.00	45.00	225		
	ANAFE Op. costs	35.00	Lumpsum	1.00	35.00	35.00	35.00	35.00	35.00	175		
<b>Audits</b>	Exeternal audit	9.00	P.a.	1.00	9.00	9.00	9.00	9.00	9.00	45		
<b>Human Resources</b>	FARA Supp. Staff	12.00	Pax	1.00	12.00	12.00	12.00	12.00	12.00	60		
	FARA Program Officer	90.00	Pax	1.00	90.00	90.00	90.00	90.00	90.00	450		
	ANAFE Program Officers	75.00	Pax	4.00	300.00	300.00	300.00	300.00	300.00	1,500		
	ANAFE Support Staff	12.00	Pax	2.00	24.00	24.00	24.00	24.00	24.00	120		
											2,575	20
<b>Capacity Building</b>	Expert Fees & Costs	45.00	Pax/pa	5.00	225.00	225.00	225.00	225.00	225.00	1,125		
	Open Access Modules	100.00	University	1.00	400.00	800.00	800.00	400.00	400.00	2,800		
	MSc and PhD training	15.00	Pax/pa	24.00	360.00	360.00	360.00	360.00	360.00	1,800		
	Internalization of Modules	25.00	Member Insitutions	33.00	0.00	0.00	0.00	825.00	825.00	1,650		
<b>Sub-total</b>	sub-total				1,518.10	1,918.10	1,918.10	2,343.10	2,343.10			
											7,375	57
M&E @ 10%	M&E @ 10%				151.81	191.81	191.81	234.31	234.31	1,004	1,004	8
Overheads @ 15%	Overheads @18%				300.58	379.78	379.78	463.93	463.93	1,988	1,988	15
<b>TOTAL</b>					1,970.49	2,489.69	2,489.69	3,041.34	3,041.34	13,033	13,033	100

Euro 1 = US\$ 1.5853 at 18 July 2008

Narrative Summary	Indicators	Means of verification		Assumptions
<p><b>General Objective</b> Contribute to sustainable achievement of high broad-based agricultural growth in Africa.</p>	<p>Agricultural growth rate improved and maintained at or above 6% per annum by or between 2012 and 2015</p>	<p>CAADP M&amp;E reports African Development Bank Statistics Ministries of Agriculture and Finance National accounts World bank FAO</p>		<p>All CAADP Pillars get underway successfully Other non-agricultural R&amp;D sectors positively respond to the needs of the rural and urban poor</p>
<p><b>Specific Objective</b> The project's overall objective is to enable every African university that offers on or off-campus courses in agriculture and natural resources to improve the relevance of its education and apply high quality education materials and delivery methods to promote learning and produce entrepreneurs and change agents.</p>	<p>Employment and career paths of graduates</p>	<p>Tracer studies of graduates in employment</p>		<p>Universities live up to their professed preparedness for fundamental change in mind sets</p>
Results	Indicators	Baseline	Target by year 5	Means of Verification

<p><b>Result 1a:</b> Teaching and learning improved by availability of a range of open-access teaching resources in use at universities across Africa, including the more remote and less well resourced ones, from which they select those most appropriate for the ecological and economic circumstances in which their graduates are employed.</p>	<p>The number and quality of open access training resources available and the number of courses in which they are routinely used</p>	<p>There is one pilot model of the envisaged open access teaching resource wholly developed for African institutions and providing exclusively African case study materials, c.f., <a href="http://agtr.ilri.cgiar.org">http://agtr.ilri.cgiar.org</a></p>	<ul style="list-style-type: none"> <li>• The target is to have 12 new open access training resources developed</li> <li>• With another 12 underway with additional funding</li> </ul>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• University records</li> <li>• Records of collaborating institutions</li> </ul>
<p><b>Result 1b:</b> The universities extending their reach and inclusiveness with formal and informal distance education.</p>	<p>The number and quality of formal and informal courses offered by African universities using open-access resources adapted for TechMODE and the number and grades of graduates</p>	<p>Technology Mediated Open and Distance Education (TechMODE) is beginning to be accepted as indicated by case studies in 5 African countries commissioned by the Commonwealth of Learning (COL), but there is a dearth of appropriate learning materials</p>	<p>The target is to have 3 universities in each of the Regional Agricultural Forums for Training (RAFT) university groupings, i.e., East, Central, Southern and West Africa</p>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• University records</li> <li>• University departmental records</li> </ul>
<p><b>Result 2:</b> Performance of lecturers at ANAFE member universities improved as an outcome of training in the use of the open-access materials and in best practices in utilising them as aids to promote learning</p>	<p>Faculty preference for using open-access training resources. Students' satisfaction ratings compared with students having traditional lectures and reading materials</p>	<p>Presently there is one pilot open access training resource being applied by some universities in animal genetics courses; see URL above</p>	<ul style="list-style-type: none"> <li>• The target is to have internalised open access training resources at 32 African universities by project year 5</li> </ul>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• University records</li> <li>• University departmental records</li> </ul>

<p><b>Result 3:</b>Lecturers, particularly those at remote and less well resourced universities, technically competent in their subject areas and more skilled in promoting learning.</p>	<p>Number and gender of MSc and PhD gained amongst faculty specificall to enhance use of open-access training resources</p>	<p>There are a number of schemes to support MSc and PhD candidates but they focus on the same core of older and stronger universities to the neglect of the new and less well resourced universities which need them most</p>	<p>The target is a modest total of about 15 higher degree candidates funded by this project but that is seen as a catalyst for drawing the attention of other donors into supporting candidates from universities that they have not traditionally supported</p>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• University records</li> <li>• University departmental records</li> </ul>
<p><b>Result 4:</b> Agriculture regains its status as a career of choice amongst greater percentages of candidates for degree courses</p>	<p>The percentage of prospective students who rank agriculture as their first or second choice and ratings of quality and suitability of graduates by employers</p>	<p>At present agriculture is a career of last resort for students failing to enter preferred career choices</p>	<p>The target is by year 5 to have 40% of students applying to universities applying open access teaching resources as their first or second choice of career</p>	<ul style="list-style-type: none"> <li>• Records of student university entrance applications</li> </ul>
<p><b>Result 5:</b> CAADP compacts and financing packages formulated with due cognisance of capacity availability and what is needed to address human and institutional capacity deficits that would compromise the success of CAADP programmes and agricultural development generally.</p>	<p>The percentage of high caliber staff that universities recruit and retain and their assessments of job satisfaction and ability to teach and conduct research effectively</p>	<p>CAADP programmes are being developed on the assumption of sufficient human and institutional capacity to implement them.  Yet every major study has warned that this is a false assumption.  Faculty remuneration tends to be poor and facilities are delapidated and out of date</p>	<p>The target is by year 5 to have a matching of the high calibre agricultural graduates required to successfully implement CAADP programmes matched by the investements required to sustainably produce them</p>	<ul style="list-style-type: none"> <li>• Project records</li> <li>• University records</li> <li>• University departmental records</li> </ul>

<p><b>Result 6:</b>Universities contributing much more effectively to CAADP and the achievement of the MDGs, especially MDG 1 relating to hunger and food security and MDG 7 relating to environmental conservation.</p>	<p>The extent to which universities are called upon to contribute to CAADP and the innovations related to agricultural development stemming from the universities</p>	<p>Up to the present African universities have hardly contributed to the development of CAADP compacts or to the design and implementation of CAADP projects. That is despite having the greatest reservoir of agricultural professionals</p>	<p>By year 5 at least one university in every country that has committed to the CAADP roundtable processes will be recognised as an important actor and contributor to CAADP</p>	<ul style="list-style-type: none"> <li>• CAADP M&amp;E systems</li> <li>• FARA and SRO M&amp;E systems</li> </ul>
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## Annex 2 Example open access training resource development activity chart

### BASIC Component: Building Capacity for managing risk and uncertainty in African agriculture

Activity	Sub activity	Partner institutions	Methodology in brief	Expected outputs	Likely outcomes	Long-term impact	Budget
							Euro
Gap analysis and developing enabling conditions for advancing the component	Survey of risks and uncertainties in African smallholder and pastoral agriculture	African universities, agricultural extension and NGOs	There will be an initial desk-study of available literature and information		Component development teams fully versed in what is expected of them and with the capacity of the nodal university	The CMT able to develop feasible plans for component design, development and validation	50
	Analysis of the coverage of risk and uncertainty due to declining soil fertility, biotic stresses (disease, insects, pests), loss of diversity and climate change in present curricula		African and partner universities compare alternative approaches and course contents			CMT well informed on the status of the teaching of risk and uncertainty	
Training module development	Design and develop teaching modules addressing risk and uncertainty due to declining soil fertility, biotic stresses (disease, insects, pests), loss of diversity and climate change	CMT <sup>27</sup> with universities	Interactive development of pedagogies for addressing risk and uncertainty learning by nodal university faculty with partner university colleagues	African faculty equipped with modern pedagogical aids for building capacity for addressing risk and uncertainty	Capacity of a core team of capacity builders strengthened and new pedagogic approaches and techniques developed	Graduates of the nodal universities well equipped to analyse risk and uncertainty and propose appropriate responses	150
	Accessing, evaluating and assembling research-based	CMT with agricultural research	Information retrieval and case studies and				

<sup>27</sup> CMT = Component Management Team, i.e., the core group responsible for developing the particular training resource

	information, knowledge tools and case study material on risk and uncertainty	institutions	collation of information from national statistics and weather bureaus		successes and failures in ameliorating risk and uncertainty		
	Testing new learning programmes, modes and materials	CMT with nodal university undergraduates	The teaching modules will be tested as they are developed with the nodal university undergraduates		New learning programmes, modes and materials designed tested, and validated		
Training resources writing and validation	Writing, editing and publishing course materials on paper and for distance learning and validation with undergraduates at nodal university	CMT, teaching materials editor & nodal university undergraduates	New approaches, methodologies & teaching materials & aids tested as components of courses at nodal university	Well developed teaching material with locally relevant and up-to-date content	Teaching/training materials ready for dissemination	Improved teaching of issues related to risk and uncertainty including, diversity and climate change	100
Dissemination and internalisation in other RAFT universities		CMT with consultant editor	Faculty from the nodal universities providing courses at collegiate RAFT universities accompanied by specialised training for their faculty	Undergraduates from all RAFT universities able to assess risks and uncertainty and propose appropriate responses in production and marketing	Capacity for teaching risk and uncertainty issues established at RAFT universities	Increased agricultural productivity & sustainable use of natural resources improving livelihoods and achievement of MDG poverty goals	own budget
Total							300

### Annex 3 The Forum for Agricultural Research in Africa (FARA)

FARA is the Forum for Agricultural Research in Africa, an umbrella organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa. FARA complements the innovative activities of national, international and sub-regional research institutions to deliver more responsive and effective services to its stakeholders. It plays advocacy and coordination roles for agricultural research for development, while the national agricultural research systems (NARSs), advanced research institutions (ARIs) and international agricultural research centers (IARCs) develop improved technologies along the research-to-development continuum in their respective countries and coverage areas.

#### *FARA's Key Strategic Statements*

**FARA's Vision:** Reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises.

**FARA's Mission:** The creation of broad-based improvements in agricultural productivity, competitiveness and markets by supporting Africa's sub-regional organisations in strengthening capacity for agricultural innovation.

**FARA's Value Proposition:** To provide a strategic platform to foster continental and global networking that reinforces the capacities of Africa's national agricultural research systems and sub-regional organisations.

FARA in its **Vision** and **Mission** statements emphasizes its commitments to the Millennium Development Goal of eradicating extreme poverty and hunger, and CAADP's goal of agriculture-led development. It confirms in its **Value Proposition** that it will do this by bringing continental and global perspectives to the networking support of the SROs and NARS. FARA's **Super Objective** is to sustainably reduce **African food insecurity and poverty** and enhance **environmental conditions**. This is to be done by sustainably establishing **high broad-based agricultural growth in Africa (General Objective)**. FARA will make this contribution by achieving its **Specific Objective of sustainable improvements to broad-based agricultural productivity, competitiveness and markets**.

These objectives are congruent with the strategic objectives of ASARECA, CORAF/WECARD, SADC-FANR, and the North African members of AARINENA. The **broad-based** nature of the plan indicates inclusiveness of issues relating to smallholders, pastoralists and fisheries, as well as female-headed and HIV/AIDS affected households; it also includes large scale and commercial enterprises. The fact that the rate of growth is to be sustainably established, indicates the intention to safeguard environmental issues, and **not** produce the increased growth through resource mining or other environmentally damaging approaches.

The **Specific Objective** FARA is to achieve through the delivery of its Results is: **Broad-based agricultural productivity, competitiveness and markets sustainably improved in Africa**. FARA acknowledges that this **Specific Objective** is ambitious, but firmly believes that it is achievable given the high levels of commitment and enthusiasm for the Strategic Plan by stakeholders, and the support of national governments and development partners. **FARA is determined to meet this challenge**. Although several important assumptions need to hold, these are largely

under FARA's control. The monitoring of these assumptions is integrated into operational planning.

Key to this is the delivery of five **Results**, which respond to the priorities expressed by FARA's clients, and which reflect FARA's comparative advantage; the results will be delivered through networking support to the SROs. The Results are:

1. Appropriate institutional and organisational arrangements for regional agricultural research and development established
2. Broad-based stakeholders have access to the knowledge and technology necessary for innovation
3. Strategic decision making options for policy, institutions and markets developed
4. Human and institutional capacity for innovation developed
5. Platforms for agricultural innovation supported

The five **Results** are to be delivered through the activities of five corresponding **Networking Support Functions**. These functions inter-relate in the same way as the Results, to satisfy FARA's **Mission** to support the SROs in strengthening Africa's capacity for agricultural innovation. Each of the **Networking Support Functions** has appropriate outcome-based indicators in their plans.

Each function will have its own operational plan that reflects its role within FARA's overall Strategic Plan. These promote the achievement of CAADP's goals and objectives in a ways that are consistent with FAAP. The activities undertaken within these functions will comply with the principles of subsidiarity with decisions and actions being taken at the lowest appropriate level. Each function's results complement and add value to the results of the other functions to promote agricultural innovation systems that are efficient and effective.

The five **networking support functions** deemed necessary and sufficient for FARA to be able to deliver the Results of this Strategic Plan, are:

1. **Advocacy and resource mobilisation** – to support the SROs and their NARSs in establishing appropriate institutional and organizational arrangements for regional agricultural research and development.
2. **Access to knowledge and technologies** – to empower researchers and end users through access to information, learning opportunities, and new technologies. This will be achieved through mechanisms for information exchange, decision making tools for transformation of information into knowledge for innovation, and mechanisms for exchange of technology-based innovations between sub-regions.
3. **Regional policies and markets** – to promote and facilitate policy analyses and market research. This provides policy makers, particularly at the continental ministerial level, with research based options. It also provides information that will empower Africa's delegates in international

trade and environmental treaty negotiations, and improve broad-based inter and intra-regional markets.

4. **Capacity strengthening** – to ensure that Africa has the human and institutional capacity, public and private, to achieve improved broad-based agricultural productivity, competitiveness and markets which will contribute to achieving the African Vision of 6% percent annual growth in agricultural production.
5. **Partnerships and strategic alliances** – to catalyse and facilitate the establishment of partnerships that bring together the range of expertise and sufficient capacities to achieve FARA’s Specific Objective. These partnerships will be able to draw on all FARA stakeholders, African and non-African, depending on the task at hand. They will create the capacity for agricultural innovation that, linked with the other supporting functions, will bring about the improvements in the efficacy and impact of African agricultural research and development.

FARA is committed to **excellence** in everything that it does, and **promoting excellence** will feature prominently in its advocacy, partnership and capacity strengthening functions. Other FARA principles involve commitments to the **principle of subsidiarity, delivery and accountability** and **participatory approaches**. These principles are reflected in all FARA’s functions and the related activities.

Adherence to the principle of subsidiarity enables FARA to devolve appropriate authority to those best placed to exercise it and allows FARA, with its comparative advantage, to focus on functions that spill-over sub-regional decision domains so that SROs and NARS benefit from decisions and actions at the continental level. Checks and balances ensure that the actions are implemented at the most appropriate levels.

This Strategic Plan concerns FARA – the **Forum**, which is a coalition of the constituent member SROs, the NARS and other stakeholders in African agricultural research and development. The **Forum** is governed by the FARA General Assembly which approves its main governance and management instruments including the FARA Constitution, FARA’s ten year Strategic Plan, five-year Medium Term and Operational Plan (MTO).

The functioning of the **Forum** between General Assemblies is entrusted to an elected Executive Committee, which oversees the programme and the work of FARA’s Secretariat, which manages FARA’s Strategic Plan.

FARA’s Networking Support will include planning and implementation of initiatives and projects in accordance with the principles of subsidiarity and in compliance with FAAP principles and guidelines. The Secretariat’s functions are to ensure that FARA’s Strategic Objective is achieved with maximum efficiency and effectiveness

#### **Annex 4 The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE)**

The African Network for Agriculture, Agroforestry and Natural Resources Education (ANAFE) is a continental organisation established to promote collaboration between universities and colleges that provide courses in agriculture, agroforestry, and natural resource management. It has a membership of 128 African universities and colleges organised into four Regional Agricultural Forums for Training (RAFTs)

ANAFE is governed by a board elected by its member institutions. It has four Regional Forums for Agricultural Training (RAFTs) which are governed by representatives of member universities in the East, Central, Sahel, West (humid sub-region), and Southern African groupings.

ANAFE will work with FARA and partners to ensure the selection of highly competent teams of African and non-African universities and agricultural researchers to implement the activities identified in this proposal. Further detail on a typical set of activities involved in developing an open access teaching resource is provided in Annex 2.

The open-access teaching resources will be made available to all ANAFE member universities and colleges through the Regional Agricultural Forums for Training (RAFTs). Additional funding will be sought to enable the development of more teaching resources and the inclusion of more universities and colleges.

The process of internalising the teaching resources will involve training the trainers at the different universities not just in how to make best use of the particular module but also as an opportunity to advance modern concepts of education which emphasise learning rather than rote learning. The training of the trainers will also involve the transfer of skills in communications, negotiations, gender analysis and other skills assets that graduates need to function effectively in holistic multi-institutional innovation systems. The interest of women students will be central to the training so as to encourage their interest and participation in agricultural training with prospects of satisfying careers in agricultural research, development and business.

The programme will be organised not just to take advantage of ANAFE's experience in organising and facilitating inter-institutional capacity strengthening programmes but also to sustainably strengthen ANAFE's capacity to meet the increasing demands placed on it as the largest African agricultural education network.



# **HARNESSING BIOTECHNOLOGY FOR THE ADVANCEMENT OF AFRICAN AGRICULTURE**



**Forum for Agricultural Research in Africa (FARA)  
African Biotechnology Biosafety Policy Platform (ABBPP)<sup>28</sup>**

**List of Abbreviations**

<b>AATF</b>	<b>African Agricultural Technology Foundation</b>
<b>ABBPP</b>	<b>African Biotechnology and Biosafety Policy Platform</b>
<b>AMCOST</b>	<b>African Ministerial Council on Science and Technology</b>
<b>ARD</b>	<b>Agricultural Research and Development</b>
<b>AU</b>	<b>African Union</b>
<b>CAADP</b>	<b>Comprehensive Africa Agricultural Development Programme</b>
<b>AUC</b>	<b>African Union Commission</b>
<b>COP</b>	<b>Conference of the Parties</b>
<b>FARA</b>	<b>Forum for Agricultural Research in Africa</b>
<b>HRST</b>	<b>Human Resources Science and Technology</b>
<b>IFPRI</b>	<b>International Food Policy Research Institute</b>
<b>MOP</b>	<b>Meeting of the Parties</b>
<b>NARS</b>	<b>National Agricultural Research System</b>
<b>NEPAD</b>	<b>New Partnership for Africa's Development</b>
<b>ReSAAK</b>	<b>The Regional Strategy Analysis and Knowledge Support System</b>
<b>SCARDA</b>	<b>Strengthening Capacity for Agricultural Research and Development in Africa</b>
<b>SROs</b>	<b>Sub-Regional Research Organisations</b>

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# HARNESSING BIOTECHNOLOGY FOR THE ADVANCEMENT OF AFRICAN AGRICULTURE

## 1. Background

To meet the UN Millennium Development Goal of halving hunger and poverty by 2015 in Sub-Sahara Africa, the World Bank Development Report 2008, after bemoaning the low level of public funding support to agriculture and the consequent low productivity, identifies modern biotechnology as one of the tools that need to be harnessed for agriculture to meet the goal of halving the number of poor and malnourished people by 2015.

The 8<sup>th</sup> AU Summit held in Addis Ababa, Ethiopia in January 2007 endorsed the recommendations of the Extraordinary Conference of the African Ministerial Council on Science and Technology (AMCOST) held in Cairo, Egypt in November 2006. The recommendations included: (i) declaration of 2007 as the launching year of building constituencies and champions for science, technology and innovation (STI) and the development of a 20-year African biotechnology strategy with specific regional technology goals; and (ii) to develop and harmonize national and regional regulations that promote the application and safe use of modern biotechnology.

The Consolidated Science and Technology Plan of Action (2005) articulates Africa's common objectives and commitment to collective actions to develop and use science and technology for the socio-economic transformation of the continent and its integration in world economy. The Plan programmes include two dealing specifically with biotechnology. These are the one 'on safe development and application of biotechnology' and the one on 'improving regional cooperation in science and technology'. These programmes are core to realizing the goals of the 20-year African strategy on biotechnology.

The world is witnessing a rapid increase in the cultivation of GM crops. The 2007 global report indicates a current level of 114.3 million hectares under GM crops. The GM crops in use are those with insect and herbicide tolerance. The key crops are Roundup Ready soybean, Bt maize, Bt cotton and Bt canola. Some of these crops have both insect resistance and herbicide tolerant genes engineered into them. In Africa, it is only South Africa that is producing GM crops, namely, Bt maize, Bt cotton and Roundup Ready Soybean on a commercial basis. It is expected that Burkina Faso will commercialize Bt cotton production in the near future.

The use of biotechnology products like genetically modified organisms or products of these organisms has potential risks to the environment and human health for which precaution is advocated in the use of the technology. A notable international convention for the safe use of biotechnology is the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (CBD) to which many countries in Africa belong.

The legislative framework for biosafety developed by many countries in West Africa under the UNEP-GEF support prescribes measures that must be adhered to in order to address any perceived or real risk associated with the use of GM technology. The taking of safety measures is binding on all countries that have ratified the Cartagena Protocol on Biosafety of the Convention on Biological Diversity.

In discussions of an African position on GMOs for African Ministers of Agriculture at an

Experts Meeting held in Libreville Gabon in 2006, the need was pointed out for the AU to guide member states in:

- a) Establishing mechanisms for public awareness
- b) Developing a sustainable African strategy on bio-safety (build capacities and task forces)
- c) Creating an enabling environment for application of biotechnology
- d) Establishing mechanisms to facilitate harmonization of regulatory systems
- e) Strengthening African capacity for effective participation in international negotiations
- f) Facilitating effective collaboration among Policy makers, researchers, farmers, service providers, civil society organizations, African leaders and development partners.

In a 2007 report (Freedom to Innovate) the African High Level Panel on Modern Biotechnology (APB) recommended various far-reaching initiatives to build the needed capacity in biotechnology in Africa. These recommendations included the co-evolutionary approach to developing biotechnology (biotechnology acquisition was to go hand in hand with biosafety capacity development), creation of regional Centers of Excellence, novel funding mechanisms for biotechnology R&D, harmonization of efforts in biotech and biosafety and the marketing of biotechnology products.

The AU Commission has initiated a Biosafety Project "Support to the AU in the Matters of Biosafety", to support its Member States in implementing the Cartagena Protocol on Biosafety and the African Model Law. In the frame of this project a Biosafety Unit has been established under Human Resources Science and Technology (HRST) Department, the African Strategy on Biosafety developed and the Model Law revised to assist the harmonization of legislation and to support the implementation of the APB recommendations.

The Forum for Agricultural Research in Africa (FARA) has been mandated by AU-NEPAD to facilitate and coordinate the implementation of CAADP Pillar IV on agricultural research technology dissemination and adoption. The new FARA strategic plan 2007-2016 established the 'African Biotechnology Biosafety Policy Platform (ABBPP)' under Networking Support Function 3 (NSF 3) which relates to Regional Policies and Markets. ABBPP seeks to engage proponents and opponents of modern biotechnology in agriculture in biosafety policy dialogue, consensus building and policy formulation for the safe application of these technologies in African agriculture. Many research and regulatory bodies exist that are concerned with biotechnology and biosafety at the continental, sub-regional and national levels and ABBPP will collaborate with these institutions.

This proposal submitted to African Science Technology and Innovation Policy Initiative (ASTIPI), will contribute to the establishment of an enabling policy environment that allows Africa to take full, but safe advantage of modern biotechnology application in improving food security and malnutrition among poor African rural and urban dwellers. It aims to achieve the above goal by supporting the strengthening of Africa's capacity in formulating and implementing biotechnology and biosafety policies.

#### **Status of biosafety legislative framework**

The most important constraint to the acquisition of capacity in biotechnology for Africa is the lack of effective biosafety legislation to permit safe access to biotechnologies. In West Africa

for example, it is only Burkina Faso that has a biosafety law and the only country in the sub-region conducting GM Bt cotton field testing.

### **Capacity strengthening in biotechnology and biosafety**

The priority area identified by countries in West Africa in particular and Africa in general, is training in biosafety risk assessment and management. Crucial supporting areas of training are food safety, GM product sampling and analysis, and molecular biology. These and other institutional capacity building needs have been listed in the decisions of the Conference of the Parties (COP) and the Meeting of the Parties (MOP II) meeting in Montreal in 2005 and the COP-MOP III meeting held in Curitiba, Brazil in 2006. A strong manpower base and supporting infrastructure are crucial for success in risk assessment and management of GM products.

The meetings of the Conference of the Parties (COP) serving as Meeting of the Parties (MOP) to the Cartagena Protocol consider issues of capacity building in biosafety to facilitate the implementation of the Cartagena Protocol on Biosafety. Under COP-MOP II, members are encouraged to ensure they have the necessary competencies to access internet-based portal, and are able to access information through the Biosafety Clearing House (BCH) in a timely manner. Member countries would therefore need to train personnel for managing the websites, and be able to gather relevant biosafety data, and also have the computer and internet facilities in place to enhance users' and regulators' access, and use of biotechnology and biosafety tools and products. A mechanism for sharing information such as the FARA-RAILS is therefore crucial to the success of collaborative arrangement on biotechnology and biosafety.

**The APB report to AU-NEPAD recommends extensive capacity building initiatives in biotechnology and biosafety especially the strengthening of curricula and pedagogy. Curriculum development and training in biotechnology and biosafety on a regional basis can be carried under the FARA led SCARDA-BASIC project on Building Africa's Scientific and Institutional Capacity (BASIC).**

## **2. Project Description**

### **African Biotechnology Biosafety Policy Platform (ABBPP)**

A FARA led ABBPP shall provide a strategic platform for a wide of range of actors engaged in biotechnology and biosafety in African agriculture to: (i) raise awareness among policy makers including community leaders; (ii) facilitate regional and sub-regional and as appropriate, national policy framework development; (iii) improve capacity of stakeholders to effectively participate in regional and international treaties and negotiations; (iv) share information and experience and support learning among actors; and (v) support capacity for product stewardship in areas of liability and redress on propriety technology. The ABBPP creates a forum where various sub-regions can share information and lessons learned on agricultural biotechnology and biosafety. Specifically, ABBPP will:

- build the necessary political awareness on the potential role of biotechnology in alleviating hunger in Africa and the need for biosafety policies, legislation and regulations to support safe application of biotechnology. In this case, the ABBPP will,
- liaise with the Biosafety Unit of the AUC to provide the needed support to the AU on issues of biosafety including building capacity of Member States to implement

the Cartagena Protocol on Biosafety and the African Model Law on Biosafety

- help sub-regions to prepare for significant international events concerned with biotechnology and biosafety. This will enable African policy makers to present evidence-based informed African position on issues of biotechnology and biosafety
- support capacity building in biotechnology by carrying out studies on investments levels in modern biotechnology application; adequacy of human resources in biotechnology and biosafety; and determining how to build the critical mass for biotechnology research in Africa

FARA coordinated projects in particular SCARDA-BASIC on capacity strengthening in research and development as well as RAILS on information and knowledge management, will support implementation of the ABBPP. Likewise, ABBPP will contribute to achievement of their objectives.

ABBPP is designed to respond to the 2006 Gabon request of the African Ministers of Agriculture for strengthening biotechnology in Africa as well as the far-reaching 2007 recommendations of the African High Level Panel on Modern Biotechnology and the revised African Model on Safety in Biotechnology of the same year.

### 3. Timeframe:

Estimated Duration	5 years	Planned Start	
		January 2009	

### 4. Objectives

Overall Goal:

*Description of overall goal*

To support the HRST-Biosafety Unit of the AU Commission in the strengthening of Africa's capacity in formulating and implementing biotechnology and biosafety policies for the benefit of poor African smallholder farmers and pastoralists.

Objectives in detail:

No.	Description of objective
1	To create awareness among African stakeholders on issues of biotechnology and biosafety: <i>Through facilitation of discourse, biotechnology stakeholders will be supported to engage with proponents and opponents with a view to raise their level of information and knowledge on benefits and risks that modern biotechnology presents.</i>
2	To support the mainstreaming of the AU-NEPAD agricultural biotechnology policy as enshrined in its 'Freedom to Innovate' report into national policy frameworks and assist the AUC to build the capacity of Member States to implement the Cartagena Protocol on Biosafety and the African Model Law on

	<i>Biosafety: Through the AU-NEPAD mechanism, Regional Economic Communities (RECs) and other regional bodies and their national systems will be supported in policy formulation in line with 'Freedom to Innovate'. There will be liaison with the AUC Biosafety Unit in building the needed capacity for biosafety legal framework development and implementation of the Member States.</i>
3	<i>To support the strengthening of African capacity to negotiate and implement international treaties and conventions related to biotechnology and biosafety. A core group of diverse African experts will be supported to participate effectively and articulate an African position on issues of international treaties and conventions negotiations especially in anticipation of the COP- MOP meetings.</i>
4	<i>To assemble and disseminate information on biotechnology and biosafety through the web and other media. Biotechnology and biosafety data will be documented and a web-accessible database established through FARA's RAILS project to enable broad stakeholder access and use.</i>
5	<i>To enhance African capacity to manage proprietary technology in areas of biotechnology. Support capacity strengthening efforts of national systems in accessing and in the safe use of proprietary technology to minimize redress and liability.</i>

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

<b>No.</b>	<b>Activity</b>	<b>Description</b>	<b>Priority</b>	<b>Budget €000s</b>
1	<i>Result 1 activity: Sensitize and inform African policy makers including proponents and opponents of modern biotechnology on its benefits and perceived risks.</i>	A broad base of stakeholders including policy makers, end users, the media, farmers and civil society will benefit from risk communication and awareness creation workshops, educative electronic and print material and media discussions on modern biotechnology.	1	430
2	<i>Result 1 activity : Conduct evidence-based analyses for informing decision making on the safe application of biotechnologies in African agriculture</i>	This will involve monitoring regionally, globally and nationally on a periodic basis, the status of application of modern biotechnologies in agriculture and its impact on societies with lessons for Africa.	1	220

<b>No.</b>	<b>Activity</b>	<b>Description</b>	<b>Priority</b>	<b>Budget €000s</b>
3	Result 2 activity: <i>Facilitate the harmonisation of sub-regional biosafety frameworks and legislation for the safe application of biotechnology.</i>	FARA ABBPP will commission a study on the analysis of existing sub-regional frameworks to determine harmony with the Cartagena Protocol on Biosafety and the African Model Law on Biosafety, similarities and differences and identify the areas for harmonisation into a regional framework. Similar studies will be commissioned for countries within sub-regions for a sub-regional harmonised biosafety framework. The ABBPP will share the findings with the AUC and advise on the institutional framework for the harmonisation exercise in collaboration with the AUC Biosafety Unit.	1	450
4	Result 2 activity: <i>Support the creation of a network of Centers of Excellence in Biotechnology.</i>	Assist the HRST-Biosafety Unit of the AUC in its on-going initiative to develop criteria for identification of Centers of Excellence will be assessed at each sub-region. Sub-regional Centers of Excellence shall be networked for cost-effective biotechnology R&D on the Africa continent .	1	220
5	Result 2 activity: <i>Support as appropriate, national biosafety frameworks and legislation preparation for the safe application of biotechnology</i>	Advise will be provided on the constitution of a national drafting committee, appropriate documentation will be provided and a resource person or biotechnology policy agency identified to guide the exercise	2	300

<b>No.</b>	<b>Activity</b>	<b>Description</b>	<b>Priority</b>	<b>Budget €000s</b>
6	Result 2 activity: <i>Monitor trends in modern biotechnology adoption vis-a-vis adoption of the provisions of the AU Model Law on Safety in Biotechnology.</i>	Developments in biotechnology at the regional, sub-regional and national levels monitored and related to the extent of adoption of the AU Model Law on Biosafety. Any need for the review of the Model Law on Biosafety shall be identified as outcome of this task. The task shall be performed in the 4th-5th year of the ABBPP project.	1	200
7	Result 2 activity: Support the development and mainstreaming of <i>context specific curriculum in biotechnology and identify mainstreamed at tertiary education.</i>	Development of a contextualized biotechnology curriculum that focuses on specific areas and targets that offer high economic potential for the regions and the continent shall be supported and mainstreamed in tertiary education.	1	100
8	Result 3 activity: <i>Identify and support skills development and participation of diverse African experts on biotechnology and biosafety treaty and conventions negotiations to the Meetings of the Parties (MOP) to the Cartagena Protocol on Biosafety (CPB) and Conference of the Parties (COP) to the Convention on Biological Diversity (CBD)</i>	Identify resource persons in law and biotechnology/biosafety policy to explain key provisions of the relevant treaties and conventions and of the issues for negotiation to biotechnology and biosafety experts in the NARS. Target the training to precede the international negotiations on the treaties and conventions such as the COP-MOP meetings and support the participation in the negotiations by the sensitised biotech actors as affiliates of the PRRI.	2	650
10	Result 4 activity: <i>Establish a web-based portal on African biotechnology and biosafety and link to existing portals in the sub-region.</i>	FARA Secretariat biotechnology/biosafety resource person will routinely document information and feed into the RAILS supported database of the web-portal.	1	370

No.	Activity	Description	Priority	Budget €000s
11	Result 4 activity: <i>Conduct web-based skills development of biotechnology and biosafety stakeholders in accessing, using and contributing to global biotechnology and biosafety information and knowledge.</i>	This shall involve quarterly training sessions for NARS by the respective SROs with FARA facilitating through funding support and resource person identification.	1	250
12	Result 5 activity: <i>Sensitise and create awareness among ARD actors on risks and responsibilities for accessing and applying modern biotechnology tools and products</i>	This involves the facilitation of the conduct of awareness creation training sessions for NARS by the SROs through funding support and resource person identification on the risks and responsibilities for accessing the biotechnology tools and products from technology providers.	1	310
13	Result 5 activity: <i>Strengthen capacity on risk assessment and safe access to modern biotechnology products and materials.</i>	This shall imply the support of the SROs to train regulatory officials of the NARS in the conduct of risk assessment and management.	1	325
14	Result 5 activity: <i>Enhance negotiation skills for proprietary technology transfer.</i>	Appropriate resource persons and funding support shall be given to the SROs to conduct short training sessions for NARS within the sub-region on effective negotiation for proprietary technology transfer.	2	200
	Monitoring and Evaluation			250
	Personnel			500
	Operatins			310
	Overhead (18%)			915
	Total			6,000

Exchange Rate used 1 Euro = 1.56 Dollar

## 6. Expected results

- |  |
|--|
| 1. Awareness of African stakeholders on issues of biotechnology and biosafety enhanced |
|--|

2. AU-NEPAD agricultural biotechnology policy and strategy mainstreaming in national policy frameworks facilitated
3. African biotechnology and biosafety capacity in international treaty negotiation and application strengthened
4. Information and web based data on biotechnology and biosafety assembled and disseminated
5. Strengthening of stewardship (liability and redress) for proprietary biotechnologies supported

## 6. Performance Indicators

Indicator 1: for *Awareness of African stakeholders on issues of biotechnology and biosafety enhanced*

- Number of awareness raising workshops organised
- Number of awareness materials in electronic and print formats produced
- Number of media discussion events
- Number of people reached by awareness activities
- Perception among ARD stakeholders about their increased awareness on biotechnology and Biosafety due to ABBPP activities

Indicator 2: for *AU-NEPAD agricultural biotechnology policy and strategy mainstreaming in national policy frameworks facilitated*

- Regional biosafety framework in place
- Number of sub-regions with harmonised biosafety legislation
- Number of applications cleared for field trials and commercial release recorded for countries and sub-regions
- Number of Centers of Excellence in biotechnology networking with one another and with national and advanced laboratories
- Degree of adoption by countries of the provisions of the AU model law on biotechnology and biosafety monitored and lessons documented
- Curriculum for Biosafety framework produced and number of institutions in which it is mainstreamed

Indicator 3: for *African biotechnology and biosafety capacity in international treaty negotiation and application strengthened*

- Number of training events supported by ABBPP
- Number of participants in these events
- Feedback from Africa countries about the effectiveness of the ABBPP in enhancing negotiation capacity and effectiveness of African participation in treaties and conventions

Indicator 4: *for Information communication and web based data on biotechnology and biosafety established*

- Dedicated FARA Secretariat website on biotechnology and biosafety data and information accessible by stakeholders established and constantly updated
- FARA web-based data linkage to the Biosafety Clearing House and other regional websites on biotechnology in Africa established
- Number of people accessing FARA's biotechnology and Biosafety website
- Number of training events and trainees on contributing information to the FARA web-portal.

Indicator 5: *for Stewardship (liability and redress) for proprietary biotechnologies strengthened*

- Number of short-term training and skills development events on risks and responsibilities for handling proprietary biotechnology supported
- Number of ARD stakeholders trained through these events
- Number of proprietary biotechnologies negotiated by African agricultural research and development experts and transferred to NARS documented

## **8. Risk Factors and Mitigation Measures**

1. *for Awareness of African stakeholders on issues of biotechnology and biosafety enhanced*

Opponents and proponents of biotechnology take strong and uncompromising positions, and the likelihood of the occurrence of an incident that might give biotechnology adverse publicity

**RISK:** Medium

Proposed Actions to minimize risk factor:

- Increased risk communication or awareness creation activities engaging policy makers, farmer groups, the media, consumer associations and anti-GM groups.
- Increased lobby of legislators and the sector Ministries that stand to benefit from modern biotech application e.g. Ministry of Food and Agriculture, environment agencies, religious bodies, etc.
- Promoting national dialogue on radio and television as well as folklore/traditional media on the subject of biotechnology.

2. for AU-NEPAD agricultural biotechnology policy and strategy mainstreaming in national policy frameworks facilitated

- Failure to harmonise biosafety legislation in various sub-regions which would stall regional collaboration efforts in biotechnology.
- The possibility of competition among centers of excellence which would stifle collaboration
- Selection of centres of excellence may leave out important players who may fully come on board

**RISK:** Medium.

Proposed Actions to minimize risk factor:

- Commission a study on the content of national biosafety legislations; identify commonalities and major differences; highlight the benefits of harmonisation and publicise them.
- Support RECs/SROs and other coordinating agencies in the sub-region that will facilitate interactions between and among NARS on the issue.
- Produce and promote a working template on harmonised legislation as basis for the sub-regional interactions.
- Solicit the commitment and support of the Regional Economic Community (REC) to the harmonisation effort to get the endorsement of member countries in the REC.
- Secure buy in from all actors in identifying the centres of excellence
- Minimise factors that may cause centres of excellence to compete and thus compromise their collaboration, such as competitive funding that pits them against each other.

3. *for* African biotechnology and biosafety capacity in international treaty negotiation and application strengthened

Lack of local funding to strengthen capacity and support the participation of African ARD experts in the international treaty conventions negotiations.

**RISK:** High

Proposed Actions to minimize risk factor:

- Sensitise governments on the benefits of the outcome and risks of not participating in international negotiation efforts.
- Encourage RECs to support country participation and countries in turn to budget for the event each year.
- Apply for funding from Foundations and relevant UN agencies in good time.

4. *for* Information communication and web based data on biotechnology and biosafety established

Inability to provide continuous data update for uploading unto the web site and dissemination through conventional and non-conventional media.

**RISK:** Medium

Proposed Actions to minimize risk factor:

- Routinely assess and document biotechnology and biosafety information and update the web base data.
- Establish reciprocal linkages with related web sites through which browsers can access relevant information.
- Provide adequate funding support for the documenting and processing the data for the web site.

5. *for* Stewardship (liability and redress) for proprietary biotechnologies strengthened

Unwillingness of Intellectual Property owners to release proprietary technologies to national biotechnology users.

**Risk:** High risk due to concern over harsh liability and redress provisions.

Proposed Actions to minimize risk factor

- Provide evidence of stewardship capability for the transferred technology.
- Facilitate the presence of an enabling biosafety legislation

## **9. Implementation Arrangements**

FARA will implement the ABBPP project through its Networking Support Function 3 on Policy and Markets. The Capacity Strengthening Networking Support Function (NSF 4) project on SCARDA-BASIC (Building Africa's Scientific and Institutional Capacity) will support the mainstreaming of contextualized biotechnology and biosafety curricula in pedagogy of tertiary education. NSF 2 on access to knowledge and technologies on the other hand, will host and manage the biotechnology/biosafety web base portal.

The FARA led ABBPP EC-AU supported project activities will be executed in collaboration with the SROs in line with FARA's principle of subsidiarity and stakeholder relations. In this regard, the SROs as strategic partners of the RECs, will directly liaise with the RECs while FARA will directly work with the AU-NEPAD and in particular, the Department of Rural Economy and Agriculture (DREA) on issues of biotechnology and Human Resources Science and Technology (HRST) on biosafety to communicate evidence based data and information for informed decision making. In that regard, FARA will actively engage with the Steering Committees of the DREA & HRST, a strategic platform and catalyst on biotechnology/biosafety policy dialogue. These committees have since agreed to harmonize events and approaches for the safe application of biotechnology in African agriculture.

The African Agriculture Technology Foundation (AATF) which is a centre of excellence on issues of public-private sector linkage with regard to the use of proprietary technology in agriculture, especially biotechnology, will play a pivotal collaborative role on the issues of technology acquisition and stewardship.

## **10. Monitoring and Evaluation**

This shall follow FARA's monitoring and evaluation arrangement and approaches. The FARA and SRO M&E specialists will develop result based M&E indicators and frameworks to assess and monitor progress and report accordingly. This will be linked with the AU-CAADP M&E framework undertaken by ReSAAKs and IFPRI.



**AFRICAN  
POLE OF EXCELLENCE ON  
DESERTIFICATION  
AND  
FORESTRY**

# AFRICAN POLE OF EXCELLENCE ON DESERTIFICATION AND FORESTRY

## 1. Background

The continent of Africa contains one-fifth of the world's surface and has some of the largest physical features, including desert. The Sahara located in the northern part of Africa, the Kalahari and the Namib deserts located in the southern part of Africa give to the continent the largest desert area in the world. It also happens the Sahara is one of the deserts getting larger every year because of desertification. It was observed that the net rate of forest loss in Africa is the second highest in the world; while the continent leads the world in the frequency of forest fires. Globally Africa suffered a net loss of forests exceeding 4 millions hectares per year between 2000 and 2005, according to FAO. This was due mainly due to conversion of forest lands to agriculture. Forest went from 665.6 millions hectares (ha) to 635.4 millions ha during that period. The need of African Initiative on desertification and forestry is highly demanded in Africa to generate, preserve, disseminate advance knowledge, technologies and solutions for addressing issues related to desertification and forestry and promotes linkages arising out of interactions between people, deserts, forests, and environment on a sustained basis through research, education and sustainable utilisation of these features.

Deforestation is a major problem in some countries as demand of fuel wood and charcoal continues to rise. Eighty percent of the communities is provided by fuel wood.

Since the drought occurred in the years 70, many project and programs national and sub regional have been initiated by Sahelian countries to combat desertification and deforestation. Among them reforestation and natural resources management projects, and the sub regional initiative in western Africa "*Comité Inter-états de Lutte contre la Sécheresse au Sahel (CILSS)*" and its technical tool the "*Institut du Sahel (INSAH)*". The experiences have linked desertification and reforestation and the need of a global natural resources management taking in account Gender, land and forest tenures, participatory approach (local governance), energy supply, and poverty issues.

The 12<sup>th</sup> Session of the African Ministerial Conference on the Environment held in June 2008 made recommendations on environmental issues addressing among others: environmental governance, land degradation, synergies of environmental conventions, the Great Green Wall of the Sahara and the Sahel and similar programs in North-East and Southern Africa, Gender, transboundary conservation of natural resources and sharing of best practices and lessons learnt, establishment of regional mechanism and initiative, Africa Environment Outlook process as monitoring and reporting tool, the African Convention on the Conservation of Nature and Natural Resources and funding of environmental initiatives.

At the international level the three Rio Conventions: the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD) were adopted in 1992 to face the environment major concerns. They are linked to issues of sustainable development and environmental quality. Since their entry into force the years 90 they had accumulated experience on desertification and forestry issues. The 9<sup>th</sup> Conference of the Parties to the CBD held in May 2008 has adopted decisions on: agricultural biodiversity, strategy of plant conservation, invasive alien species, forest biodiversity, incentive measures, ecosystem approach, consideration of Millennium Development Goals and financial resources and mechanism. These decisions covered among others, specific issues like the improvement of scientific information through international mechanism of scientific expertise, capacity building and resources mobilization, involvement of all stakeholders in the initiatives, public research results, and importance of biodiversity for poverty eradication, development of target or vision on the basis of robust scientific evidence. The 7<sup>th</sup> Conference of Parties to the UNCCD held in October 2005 has adopted decisions on: strengthening the implementation of the convention in Africa, mobilization of resources, improvement of communication of information, promotion and strengthening relationship with other conventions, traditional knowledge, benchmarks and indicators, and programme of work of the Committee on Science and Technology. The decisions include specific issues on cross sectorial coordination and partnership (like socio-economics, research/monitoring/information, dissemination of best practices), knowledge sharing and access to

technologies, development and promotion of renewable energy and energy efficiency, enhancing of synergies between the Rio Conventions, integration of traditional and modern knowledge in combating desertification.

There is then the need to use modern science and technology building up on the huge experience accumulated in Africa on desertification and forestry in relation with the implementation of the environmental conventions, avoiding past failures and strengthening the success stories.

**The intention of this project it is not to start a new research or academic exercise but to rationalise the existing accumulated knowledge in Africa. Sharing information, data, methodologies have to become a common way to work for the African scientists and researchers. Enhancing their capacity to analyse problems and provide issues, options and solutions to African decision-makers have to become the challenges for the African researchers dealing with desertification and forestry.**

**Starting from these assumptions the effort that the AUC-HRST project will be to support the creation of an African "Pole of Excellence" where science and policy may joint their needs and their visions for the wellbeing of the present and future African populations. The acknowledgement of the excellence will derive not from the capacity of a department or laboratory to conduct its own research but from its capacity to integrate disciplines, analysis and researches within the same scheme for the common aim of the African sustainable development.**

## 2. Project Description

The project foresees three phases.

The first one will be a structural one with the nomination of an "African-International Scientific and Development Executive Board" and an "African Accompanying Committee".

The second one will be the constituent year with finalisation of the call for presentation of Consortium candidatures, the definition of the related selection criteria and redaction of a specific Consortium legal contract form.

It will be concluded by three years of Consortia implementation (for more details see section activities).

At the end of the 5 year project the created 'Pole of Excellence' will have to reach complete autonomy and continue its mandate in total independence, also financially.

All the activities and works will be decided jointly by the African-International Scientific Development Board and the African Accompanying Committee.

These two bodies will be independent and will be responsible for the whole management process (inter alia: allocation of funds, different evaluation and monitoring phases). They will implement the project during its five years with the technical help of a specific secretarial team, duly recruited by and under AUC salary conditions.

AUC – HRST will be part of both bodies but as a member and without veto rights.

The Board will present annually a report on the project implementation to the African Accompanying Committee, for its evaluation amendment approval. The Board report, with the comments by the African Accompanying Committee, will be transmitted to the AMCEN and AMCOST steering committees for final approval.

**The experience conducted through this 'Pole of Excellence' has to be considered as a test and an example for the other Poles to be launched in Africa within 2010 (at least 10, two for each African Economic Regions - RECs) in five thematic areas: Life Sciences; Technology and Innovation Sciences; Space Science and Technology; Water and Energy; Governance.**

### 3. Timeframe:

Estimated Duration	Five Years	Planned Start	Second half of 2009
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### 4. Objectives

Overall Goal:

*Description of overall goal*

Creation of an autonomous "African Pole of Excellence on Desertification and Forestry" having the mandate to: advice AU Member States; to guide the African research and development in the fields related to desertification and forestry; to serve as a focal point for Knowledge/technology transfer between the African Scientists.

The Pole will: improve, generate, preserve, disseminate and advance knowledge, technologies and solution for addressing issues related to desertification and forestry; and promote linkages arising out of interactions between people, deserts, forests and environment on a sustained basis through research, education and sustainable utilisation of these features.

Objectives in detail:

No.	Description of objective
1	Creation of a permanent structure of the African Pole via: i) an African International Scientific and Development Board, ii) an African Accompanying Committee, and iii) a specific technical Secretariat.
2	Solution of the juridical aspects to allow the Board to provide funds to Consortia and the juridical requisite for Consortia to receive funds, including all the aspects related to trust and misleading.
3	Identification, via a specific call and ad hoc scientific/technical evaluation, of the best consortia on desertification and forestry, at least one consortium for each African Economic Region.
4	Acknowledgment of the Consortium agreement via specific contracts among the Board and the selected Consortium.
5	Implementation by the Consortia of the activities foreseen in the contract and aiming at structuring the Pole of Excellence allowing exchange of scientists, meetings, networking, joint publications, sharing of data, and all other actions considered relevant in the context of integration within the sustainable development concept. The Consortium may also create new additional necessary infrastructures.
6	Annual monitoring and evaluation by the Board to allow amending, modifying, adjusting, improving the modus operandi of the Consortia and of the whole project.
7	Year evaluation report on the implementation of the different phases of the project by the Board to the African Accompanying Committee, for including its comments and for transmission to the AMCOST and AMCEN for final approval.

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost
1	Creation of a Permanent Structure	<p>i) <b>The African International Scientific and Development Board</b>            This body will be formed of around 14 people: 10 named by the African Accompanying Committee and selected upon public own criteria, 5 of this ten experts will come from the desertification and forestry scientific world (preference will be given to scientist coming from Africa and from the intellectual African Diaspora); the other 5 persons will be selected from the civil society, local authorities, private sector.            In addition to the named members, the following Organisations will have a specific place in the Board: a technical representative of AUC-HRST (Director level); a scientific representative named by the Scientific group of experts on the Desertification Convention; an officer of the FAO; and a scientific officer of EC-DG RTD.            In the first year the Board have to meet regularly at least once par month. New ITC technologies, especially those implemented via the Virtual Campus, will be largely used. No specific remuneration has to be foreseen during the first year of the project phase to the Board members. Starting from the launch of the Consortia Contracts, specific remuneration to Board Members will be foreseen according to the acquired juridical responsibilities.</p> <p>ii) <b>The African Accompanying Committee</b>            The Accompanying Committee will be composed by African world acknowledged personalities non necessarily coming from the academic world.            The chairmanship of the Committee will be offered to an high moral African personality ( first offer to Mrs Wangari Maathai); other African members will be selected upon indication of the chairperson.            The total number of the members should not exceed 7 including the chairman. In addition to the 7<sup>th</sup> African named experts, the AUC-HRST Commissioner will be part of the Committee as an "inter pares" and without right of veto.            The African Accompanying Committee members will be officially named and acknowledged by the AMCOST.            The Committee will establish its own rules of memberships and working.            The Memebers wil not receive salaries or special indemnities but their costs will be totally covered.</p> <p>iii) a specific technical Secretariat.: will be recruited, under the AUC conditions. It will be necessarily "light" but at the same time has to be extremely flexible I order to accompany the Board and the Advisory Committee. Accordingly and indicatively it is indicated:            3 scientific officers (one with specific juridical background);            4 secretaries; 1 financial officer; and 1 ITC official.            one</p>	1	

2	Solution of the juridical aspects to allow the Board to provide funds to Consortia and the juridical requisite for Consortia to receive funds, including all the aspects related to trust and misleading.	During the first year of the project, the Board will: a) define the criteria to be used to acknowledge the excellence criteria. b) via the secretariat will prepare and endorse the call to be sent to all concerned institutions; c) establish the evaluation procedures; d) define the term of the juridical terms of the contract form, including penalties for delays and misuse of funds; e) and present the proposed call, criteria, evaluation procedures and contract forms to the Accompanying Committee for approval.		
3	Identification, via a specific call and ad hoc scientific/technical evaluation, of the best consortia on desertification and forestry, at least one consortium for each African Economic Region.	During the 2nd year of the project: i) launch the call for consortium, ii) evaluation and selection of the best excellent consortia; iii) presentation of the selection results to the Accompanying Committee;		
4	Acknowledgment of the Consortium agreement via specific contracts among the Board and the selected Consortium.	Always during the second year of the contract: establishment and signature of the consortium contracts and payment of the first advance.		
5	Implementation by the Consortia of the activities foreseen in the contract and aiming at structuring the Pole of Excellence allowing exchange of scientists, meetings, networking, joint publications, sharing of data, and all other actions considered relevant in the context of integration within the sustainable development concept. The Consortium may also create new additional necessary infrastructures.	This will be the third project phase during the last three years of the project. The Consortium - once signed the contract - will have the full responsibility, legally binding, to implement the work as described in the project work plan. The consortium activities will cover, inter alia: (i) To carry out scientific research in Desertification and Forestry in order to provide technologies to: a) increase the vegetative cover and to conserve the biodiversity in Africa; b) Rainwater harvesting; c) Afforestation on stress sites; d) Eco-stabilization of deserts; e) Production of high quality planting material; f) Trial of important arid zone species; f) Tree improvement through tissue culture & genetic engineering. (ii) Train African scientists and institutions through activities that stimulate hands-on learning on Desertification and forestry issues; (iii) Focal point for Knowledge/ technology transfer between the African Scientists and their counterpart; and (iv) Raise public awareness on Climate change and its impact on desertification and forestry		
6	Annual monitoring and evaluation by the Board to allow amending, modifying, adjusting, improving the modus operandi of the Consortia and of the whole project.	The Consortium will present an annual report on the implementation of the Contract, including the justification for the financial aspects, to the Board for approval and for receiving the next tranche of payment.		

7	Year evaluation report on the implementation of the different phases of the project by the Board to the Accompanying Committee, for including its comments and for transmission to the AMCOST and AMCEN for final approval.	The Board will present a specific report on the implementation of the project with suggestions for amendments, modification corrections for endorsement by the African Accompanying Committee. A final document with the Board report and the comments by the Accompanying Committee will be presented for approval to the AMCOST Bureau and AMCEN Steering Committee that will structure an ad hoc steering committee.		
	The costs of the project for additional staff is estimated at 6.5%			€ 975.000
	The cost of physical infrastructures (renting offices, furniture, ...) is estimated at			€ 250.000
	The functioning costs including meetings, indemnities and special infrastructure for videoconferences is estimated at			€ 450.000
	The total amount for Consortia funding for the last 3 years			€ 13.325.000
	<b>Total Cost of the Contribution for the 5 project years</b>			<b>€15 Millions</b>

## 6. Expected results

- An African Pole of Excellence on Desertification and Forestry fully guided by a Board and an Accompanying Committee
- Creation of a Consortium at least in each African Economic Region, strengthened in their capacity to coordinate, link and enhance research activities within the Consortium members and among the Consortium with the other regions.
- Enhancing the capacity of integration of African scientific community in the international context.
- Common training and exchange activities for at least 200 African Scientists/year in the field of desertification and forestry (particular encouraged by the Virtual Campus University structures).;
- Scientists' exchange/common research programmes between the Consortia and its counterpart in Europe;
- Monitoring the desertification in Africa to provide issues to policy makers
- African society will increase awareness on desertification and its impact in their daily-life via the activity of the Consortia.

## 7. Performance Indicators

Indicator 1: Consortia creation

Number of selected and funded Consortia under the Pole of Excellence
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Indicator 2: Scientific issues

- Number joint research activities and their rate of evolution in the implementation of the Consortia.
- Number of collaboration established among scientific institutions.
- Number of common initiative established in common scientific research fields
- Number of joint PhD and Masters supervisions resulting from the execution of the funded Consortia activities
- Number of publications in African national and regional research priority areas
- Number of publications with international partners

#### Indicator 3: Scientific excellence

- Number of publications in leading conferences and journals in African or international specialised literature
- Number of patents derived by the research results
- Number of Invitations to address international conferences
- Number of scientific publications in proceeding of international workshops
- Number of Peer reviewed international scientific magazines

#### Indicator 4: Impact

- Number of scientific meetings related to the topics organised by the consortia
- Number of web sites illustrating the consortia research and activities
- Number of user groups interested and seeking technical advices from the output of the project research results
- Number of awareness programs at the government, industry and user group levels
- Number and relevance of case studies useful to industry players and targeted user groups for the identified strategic scientific fields.
- Number of industry-linked African research grants awarded i.e., PhD, maters students and honours projects
- Number of major strategic industry partners to be involved in the research results of the grants program.
- Number of research papers presented in user conferences

#### Indicator 5: International Dimension

- Number and duration of visits by African researcher involved in the AUC research activities to visit international leading research groups
- Number and duration of leading international researchers visiting African institutions
- Number of joint publications with leading international researchers
- Number of joint grant applications with leading international researchers
- Number of the African research communities involved in the EU-Africa partnership

## 8. Risk Factors and Mitigation Measures

### 1. Absence of Commitment

Absence of commitment by the nominated members of the African International Scientific and Development Board and the African Accompanying Committee

**RISK:** High

Proposed Actions to minimize risk factor:

The nominated persons have to take their own responsibilities in managing the project/programme. This will be possible if they may work in autonomy and synergy. The nomination should be given to high qualified experts with personal involvement in the African development. Special attention should be given to African Nobel Prizes and experts fro African intellectual Diaspora.

## **2. Scientific and moral Excellence**

Weak definition in Consortium selection criteria and on rules of contract implementation

**RISK:** High.

Proposed Actions to minimize risk factor:

The Consortia have to be selected on the basis of their scientific competences and excellence. Ad the same time specific rules for managing the received funds have to be created with identification of specific actions of control and recovering if necessary. The Consortium selection should be conducted via transparent and verifiable procedures To become member of the Pole of Excellence should be a wide acknowledgement of scientific quality and correct fund management.

## **3. Staff availability**

Non sufficient secretarial and technical staff.

**RISK:** High

Proposed Actions to minimize risk factor:

The indicated staffs have to be quickly recruited and pit available at the services of the two bodies. Without their actions the two bodies cannot properly work and the whole exercise could fail miserably.

## **4. Financial**

Financial availability.

**RISK:** Medium

Proposed Actions to minimize risk factor:

The availability of funds has to be assured before the formal approval of the project. The funds have to be available the first two years only for the functioning of the two new bodies and for the staff recruitment. At the beginning of the third year the funds for the Consortia have to be available at the moment of the Contract signature. The consortia should initiate their activities receiving an advance payment to be established in the proposal but not less than 30% of the total Consortium cost. It has to be reminded that the use of the funds is under direct responsibility and autonomy of the Board and of the Accompanying Committee. They have, in the first project year, to create also the mechanisms of control for the funds allocated to the Consortia.

## 5. Legal and contractual risks:

Risks may include, but are not limited to:

- Financial reporting standards
- Research contracts can be failed to specify exactly what activities should be done over what period allocated and so fail to be a basis to determine payment for research program progress
- Threat of payment transaction to be used in the project purposes

**RISK:** High

Proposed Actions to minimize risk factor:

This kind of risk is implicit in the capacity building effort but in this case it assumes a particular element for the success of the Pole. The Board and the Accompany Committee will act in autonomy and they have to create the rules for implementing the Consortium activities and related use and control of the funds. Only implementing the Consortium calls it will be possible to learn how to structure a future African Pole of Excellence and used for other similar experiences. Furthermore, the risk will be reduced by capitalising the yearly accumulated asset and using the support, knowledge and experience of the similar experiences in the EU.

## 6. Operational risks

Organisation risk can be determined by:

- Excessive administrative burdens
- Facilities are not available or are available but inadequate (e.g., no phones communications, lack of network wiring, computers operating, etc...)
- Too much formality regarding bureaucratic adherence to the project activities and objectives
- Communications tools between the project partners do not work as expected
- Limited or poor creation of database in time schedule that could not be representative of the African scientific institutions. This could constitute a constraint for getting a good quality of research proposals

**RISK:** Medium to low

Proposed Actions to minimize risk factor:

Maintaining the autonomy of the two new management bodies and allowed them to experiment specific solutions and issues.

## **9. Implementation Arrangements**

The AMCOST Bureau has to endorse the whole proposed activity at its November 2008 meeting. The AUC has to indicate to the AMCOST the person in charge of the creation of the African Accompanying Committee, possibly an African Nobel prize. The Accompanying Committee has to select and propose names of African and international experts to form the Boards.

The AUC-HRST has to facilitate the recruitment of the indicate Staff either directly as Staff of the AUC or as independent group but with the AUC salaries and indemnities. The staff will be located in the places and offices indicated or chosen by the Board but possibly out of the Addis Ababa Headquarters.

The Board has to create the call for Consortium selection and the related rules and contracts, the Staff has to follow the whole process as decided by the board and implement the selection process.

The AU - EU partnership has to reserve the financial support (estimated in total 15 M of €, but almost 13.5 Millions € at the beginning of the 3<sup>rd</sup> year.

## **10. Monitoring and Evaluation**

A specific evaluation activity has to be implemented by the Board and the Accompanying Committee in order to evaluate and correct the Pole of Excellence methodology for any further similar African action.



# **AFRICAN UNION INITIATIVE ON CLIMATE CHANGE**

**(African Institute on Climate Change -  
AICCC)**

## **AFRICAN UNION INITIATIVE ON CLIMATE CHANGE (African Institute on Climate Change - AICC)**

### **1. Background**

At the international level the three Rio Conventions: the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate Change (UNFCCC), and the Convention on Biological Diversity (CBD) were adopted in 1992 to face the environment major concerns. They are linked to issues of sustainable development and environmental quality.

Since their entry into force the years 90 they had accumulated experience on climate change impact on the earth's climate, ecosystems, and other environmental systems and on the interaction between humans and the natural world.

The 9<sup>th</sup> Conference of the Parties to the CBD held in May 2008 has adopted decisions to make effort towards a more secure global future: agricultural biodiversity, strategy of plant conservation, forest biodiversity, incentive measures, and ecosystem approach, consideration of Millennium Development Goals and financial resources and mechanism.

These decisions covered among others, specific issues like the improvement of scientific information through international mechanism of scientific expertise, capacity building and resources mobilization, involvement of all stakeholders in the initiatives, public research results, and importance of biodiversity for poverty eradication, development of target or vision on the basis of robust scientific evidence.

The 7<sup>th</sup> Conference of Parties to the UNCCD held in October 2005 has adopted decisions on: strengthening the implementation of the convention in Africa, mobilization of resources, improvement of communication of information, promotion and strengthening relationship with other conventions, traditional knowledge, benchmarks and indicators, and programme of work of the Committee on Science and Technology. The decisions include specific issues on cross sartorial coordination and partnership (like socio-economics, research/monitoring/information, dissemination of best practices), knowledge sharing and access to technologies, development and promotion of renewable energy and energy efficiency, enhancing of synergies between the Rio Conventions, integration of traditional and modern knowledge in generating solutions for climate change.

In 2007 the African Union Assembly realised the importance of Climate change and its impacts in Africa and they clearly reflected their preoccupation on this issue in the Addis Ababa declaration on Climate change. Indeed, Climate change is expected to have a wide range of impacts on Africa's natural resources, ecosystems, infrastructure, health systems, and the economy. In order to prepare for these challenges, planners must have better information about the risks to vulnerable systems and how effective adaptation can lessen any adverse impacts.

The African Union Commission has conducted in 2007 a study on "Climate Change for Africa's Development" based on the main idea that it may exist opportunities to mitigate climate impact in the continent. The Twelfth Session of African Ministerial Conference on the Environment (AMCEN) has adopted decision on the Comprehensive Framework of African Climate Change Programmes for synergies in implementation and review of climate change initiatives and sustainable development in Africa.

## 2. Project Description

The African Climate Change Institute will constitute an interdisciplinary research and development unit of organized to conduct research, development and high education focused on variability of the earth's climate, ecosystems, and other environmental systems and on the interaction between humans and the natural world. The Institute investigations cover the research activities include field, laboratory, and modeling studies that focus on the timing, causes, and mechanisms of natural and forced climate change, and on the effects of past climate changes on the physical, biological, chemical, social, and economic conditions of the earth generally and in Africa particularly. To accomplish its goal of better understanding climate change and its impact on humans and ecosystems the Institute is planned to include researchers, and research students from different departments having diversified scientific fields i.e. Biological Sciences, Computer Science, Earth Sciences, Environmental sciences, Agriculture sciences , Marine Sciences These departments will have laboratories equipped with the devices necessary for carrying the research and development activities.

The Institute will be of international scope and significance, and includes projects in the different African countries and many regions of the world. The Institute maintains a strong program of international collaboration with a variety of organizations

The mission of the African Institute on Climate Change (AICC) is to:

- To provide knowledge of core concepts in environmental science; provide quality content and tools to learn and teach possible causes, effects, and potential solutions to climate change; provide intellectual tools for learning and teaching science as inquiry; create, through collaboration among institute colleagues, create a professional network of researchers to enhance the breadth and diversity of research and development techniques.
- To be a world-leading institute generating and communicating the highest quality research on climate-driven change and translating this into sustainable technological, political and socio-economic responses.

The multidisciplinary strategy of the institute enables us to build upon an extensive expertise in climate change research in order to develop mitigating technologies and impact on public and private policy. It is in this way that we will strive towards a more secure global future. It will focus its multidisciplinary efforts around the following ~~four~~ research and development themes:

1. Carbon markets, pricing and regulation
2. International technology support
3. Economics of biofuels and deforestation
4. International region and country studies
5. Earth Systems Science
6. Vulnerable Ecosystems and Human Wellbeing/Adaption and Mitigation technologies

## 3. Timeframe:

Estimated Duration	Five (5) years	Planned Start	2009
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#### 4. Objectives

Overall Goal:

*Description of overall goal*

This project is aimed at the establishment of the African Institute on Climate Change to advise AU Member States in the issues related to Climate change and to guide the African research and Development in the areas related to Climate change.

The AICC will develop and/or improve the capacity of the African scientists in the Climate change also it will be as the focal point for knowledge/technology transfer between the African Scientists and their counterpart in the globe specially those based on Europe. Therefore, the research to be taken under the AICC will help in identifying the potential impacts and effective adaptation methods for Africa, particularly with regards to ecological resources, water resources, agriculture and human health and etc.

Objectives in detail:

No.	Description of objective
1	Creation of a permanent structure with autonomous governance of the "African Climate Change Institute" via a specific African Board of Governors assisted by and International Committee on matters relating to the role and the scientific, technical, juridical, and financial management of the Institute.
2	Creation of a physical structure of an African institute of Climate Change (AICC) in one AU State Member with connected/related existing structures in other AU Countries
3	Conduct the relevant research and development in the area of Climate Change issues
4	Train African Scientists and Institutions through activities that stimulate hands-on learning on climate change issues
5	<u>Creation</u> of Focal points for knowledge/technology transfer between the African Scientists and development actors and their counterparts
6	<u>Construction</u> of a clearinghouse of climate-critical information; and Raise public awareness on Climate change and its impact on their society

## 5. Activities and Estimated Cost

Activity: Title and narrative description of each activity that is planned to fulfil the objectives

Deliverable: specific tangible and verifiable deliverables such as reports, minutes, policy documents, study reports etc.

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost (\$000)
1	<p>Creation of a permanent structure with autonomous governance of the "African Climate Change Institute" via a specific African Board of Governors assisted by and International Committee on matters relating to the role and the scientific, technical, juridical, and financial management of the Institute.</p>	<p>A dedicated autonomous African Board of Governors will be created with the mandate to create the conditions for the implantation of the AICC. It will be supported scientifically and technically by an ad hoc International Committee.</p> <p>This Board of Governors, 15 members in total, consists of 10 high-level scientific representatives from African Member States including the Intellectual Diaspora, officially nominated by the AUC-HRST. It also includes a technical representative of AUC-HRST (Director level); a scientific representative named by the Scientific group of experts on the Climate change Convention and representatives of the Civil Society Organisations. Its main mandate is to rule and manage all the process related to the creation of the AICC and its following activities on technical, juridical, financial issues. The AICC is a Department of the AUC. The Board will cope also with the recruitment of the AICC staff both scientific and administrative ones.</p> <p>The International Committee will be composed by African and world acknowledged personalities non necessarily coming from the academic world. They will a reference group to facilitate the integration of the AICC activities within the international CC efforts.</p> <p>A small full time secretariat at the AU/HRST must be created to undertake day to day keeping the board of governors fully informed of progress, organize and coordinate the preparation of the institute program.</p>		500.000

2	Creation of a physical structure of an African institute of Climate Change (AICC) in one AU State Member with connected/related existing structures in other AU Countries	<p>Construction of new buildings hosting the AICC. The infrastructure will be charged to the host countries of a rate of 75%.</p> <p>The structure of the AICC will be defined by the Board of Governors, initially and indicatively at least 6 scientific Units will be established with the recruitment of the required staff (research, technicians, workers, etc.). The Units will be operational at the beginning of the second year of the AICC.</p> <p><b>Note:</b> The AICC, with the AU staff, is allocated an annual budget from the AU and could earn up further funds from competitive activities (participation in collaborative projects, technology transfer and work for third parties - including industry and regional authorities).</p>		4.250.000
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	<p>3. Economics of biofuels and deforestation</p>	<p>emissions. For avoiding deforestation and for promoting biofuels as a strategy for mitigating climate change African countries have to consider the wider economic and environmental implications of land-use change. This issue of land-use change, in some African countries cannot be tackled without analyzing the political-economic dimension. Thus this research activity will look at the governance arrangements necessary to effectively manage forests and rural lands in relation to climate change.</p>		
	<p>4. International region and country studies</p>	<p>The requirement in the design of effective international mitigation and adaptation strategies will be the development of African scientists research networks that include both the developed and African countries and that include those countries whose emissions rate are increasing the most rapidly. An international region and country studies program will enable the African Institute on climate change to develop links with African researchers and data sources, to develop joint projects that assess and contribute to the effectiveness of international climate policy from a global perspective.</p>		
	<p>5. Earth Systems Science:</p>	<p>The African Institute on Climate Change is expected to work in fundamental earth systems science and will focus efforts on improving understanding and modeling of key processes that will determine future climate e.g. biosphere-atmosphere and ocean-atmosphere interactions key phenomena such as monsoons and weather systems, and by using evidence from the past to help African scientists understand the possibilities of unexpected climate change.</p>		

5	Train African Scientists and Institutions through activities that stimulate hands-on learning on climate change issues	Organizing advanced training courses for the African scientists and engineers led by famous African and international scientists in multidisciplinary researches that investigate the impacts of different types of global environmental change on natural and human systems. These will have a particular focus on areas critical to future human wellbeing, including in some of the most vulnerable areas of the African region.		600.000
6	Creating within the Institute a focal point for research in climate change issues	The institute will serve also as the African focal point that constitute an operational and dynamic network for knowledge/technology transfer between the African Scientists and development actors and their counterpart		300.000
7	Annual reporting to AMCOST and AMCEN	The Board will prepare a yearly report on its activities and progress to the International Committee for comment. The final report version, including the Committee's remarks will be channeled for formal approval or amendment to the AMCOST and AMCEN.		
	Staff salaries (researchers, technicians, administrative, workers, ...) over the whole project period			3.250.000
	Overhead (20%)			2.100.000
		<b>TOTAL USD</b>		<b>\$ 10.500.000</b>
		<b>(Total for five years: Euro</b>		<b>€ 7 Millions)</b>

## 6. Expected results

<ol style="list-style-type: none"> <li>1. Implementing a physical infrastructure of an African climate change institute (AICC) and creating a structure and governance of the Institute with well defined and appropriate research program, guided by a Board of Governors and an International Committee, on climate change issues for the African continent.</li> <li>2. Technical issues on: i) Identifying ways in which carbon markets can be made to work more effectively, efficiently and equitably in African region; ii) Initiating African countries to develop green technologies, through a mixture of direct support for research and development, and creating the right kinds of conditions for markets to pull the best clean</li> </ol>
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technologies forward.

3. Developing links with African researchers and data sources, and expanding joint projects that assess and contribute to the effectiveness of international climate policy from a global perspective.
4. Helping African scientists to understand and to model key processes that will determine future climate interactions phenomena.
5. Developing multidisciplinary researches and development fields that investigate the impacts of different types of global environmental change on natural and human systems and reduce harmful consequences.

## 7. Performance Indicators

Indicator 1: Scientific assessment and understanding climate change

- Number of collaboration established among scientific institutions.
- Number of common initiative established in common scientific research fields
- Number of joint PhD and Masters supervisions resulting from the execution of the funded Consortia activities
- Number of publications in African national and regional research priority areas
- Number of publications with international partners

Indicator 2: Ecological issues

- Progress in preventing pollution
- Progress in restoring and maintaining the integrity of ecosystems
- Progress in developing a system of protected areas
- Reduce vulnerability to sustained political natural disasters and climate related

Indicator 3: Technical issues

- Concrete measures to adapt and mitigate climate change
- identified actions and technological innovation to be implemented in the African region for reducing harmful consequences of climate change issues

## 8. Risk Factors and Mitigation Measures

### 1. Absence of Commitment

Absence of commitment by the nominated members of the African International Scientific and Development Board and the International Committee

**RISK:** High

Proposed Actions to minimize risk factor:

The nominated persons have to take their own responsibilities in managing the project/programme. This will be possible if they may work in autonomy and synergy. The nomination should be given to high qualified experts with personal involvement in the African development. Special attention should be given to African Nobel Prizes and experts

from African intellectual Diaspora.

## **2. Scientific and moral Excellence**

Weak definition in the definition of the scientific Unit of the AICC.

**RISK:** High.

Proposed Actions to minimize risk factor:

The Board of Governors has to be selected on the basis of their scientific competences and excellence. At the same time specific rules for managing the received funds have to be created with identification of specific actions of control and recovering if necessary.

## **3. Staff availability**

Non sufficient secretarial and technical and scientific staff.

**RISK:** High

Proposed Actions to minimize risk factor:

The indicated staffs have to be progressively recruited and put available at the AICC Units and departments. Without their actions the AICC cannot properly work and the whole exercise could fail miserably.

## **4. Financial**

Financial availability.

**RISK:** Medium

Proposed Actions to minimize risk factor:

The availability of funds has to be assured before the formal approval of the project. The funds have to be available the first year only for the functioning of the two new bodies and for the staff recruitment and the building construction. At the beginning of the second year the funds for the Consortia have to be available at the moment of the recruitment of the scientific staff. The AICC Units should initiate their activities receiving the necessary research personnel. It has to be reminded that the use of the funds is under direct responsibility and autonomy of the Board Governors. They have, in the first project year, to create also the mechanisms of control for the funds allocated to the different research Units.

## **5. Legal and contractual risks:**

Risks may include, but are not limited to:

- Financial reporting standards
- Threat of payment transaction to be used in the project purposes

**RISK:** High

Proposed Actions to minimize risk factor:

This kind of risk is implicit in the capacity building effort. The Board and the International Committee will act in autonomy and they have to create the rules for implementing the activities and related use and control of the funds. Only implementing the researches via the AICC Units it will be possible to learn how to better structure the AICC. Furthermore, the risk will be reduced by capitalising the yearly accumulated asset and using the support, knowledge and experience of the similar experiences of other AU Institutions.

## 6. Operational risks

Organisation risk can be determined by:

- Excessive administrative burdens
- Facilities are not available or are available but inadequate (e.g., no phones communications, lack of network wiring, computers operating, etc...)
- Too much formality regarding bureaucratic adherence to the project activities and objectives
- Communications tools between the project partners do not work as expected
- Limited or poor creation of database in time schedule that could not be representative of the African scientific institutions. This could constitute a constraint for getting a good quality of research proposals

**RISK:** Medium to low

Proposed Actions to minimize risk factor:

Maintaining the autonomy of the two new management bodies and allowed them to experiment specific solutions and issues.

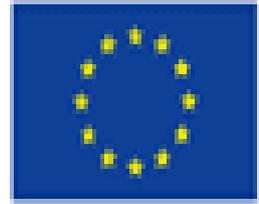
## 9. Implementation Arrangements

The AMCOST Bureau has to endorse the whole proposed activity at its November 2008 meeting. The AUC has to indicate to the AMCOST the person in charge of the creation of the African Board of Governors and of the International Committee, possibly an African Nobel prize.

The Boards of Governors has to act for the recruitment of the indicate Staff using the AUC salaries rules and standards. The staff will be located in the places and offices allocated for the AICC by the selection of the sites proposed by the AU State Members (which they have to cover at least 75% of the infrastructure costs).

## 10. Monitoring and Evaluation

A specific evaluation activity has to be implemented by the Board and the International Committee in order to evaluate and correct the Pole of Excellence methodology for any further similar African action.



## **Part 3**

**"Enhance cooperation on Space applications and technology"**

**(Space)**

# Part 3

## SPACE

### Rationale

Researches at Joint Research Center (JRC) of the European Commission have addressed African issues over the last three decades. JRC's African research includes development of databases documenting physical, environmental and socioeconomic variables, complemented by modelling, dedicated geographic information systems and near-real time information from Earth Observing satellites. Issues include environmental status (land degradation and desertification, biodiversity, and climate change), natural resource condition (water, forestry, rangeland and agriculture), natural hazards (fires, droughts and floods), energy (photovoltaics), humanitarian assistance (refugee camp management) early warning systems (conflict and natural disasters), conflict prevention (Kimberly Process) and trade (Forest Law Enforcement, Governance and Trade - FLEGT; biofuels; export subsidies; non tariff trade barriers and trade balances)

JRC complements first-hand experience of situations affecting Africa's development with excellent networks across the continent. Since the 1970s JRC staffs have worked in Africa alongside African counterparts and with key partners in Member States, with EUMETSAT, ESA and National Space Agencies and with the UN System's FAO, UNEP, UNOCHA, UNDPKO, UNDFS, WMO and WFP. The JRC has also run many training courses in Africa, has hosted visits from African scientists and increasingly works with the African Union Commission.

In Seventh Framework Programme (FP7) JRC is bringing research on African issues together under the umbrella of the African Caribbean and Pacific (ACP) Observatory for Sustainable Development. This focuses on natural resource management (including energy), food security, conflict prevention and humanitarian assistance. Staff from four institutes<sup>29</sup> working with their counterparts in the EC Delegations and Policy DGs (the RELEX family, DG AGRI and DG ENV) is developing a common vision for the ACP Observatory. The purpose of this

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<sup>29</sup> *Institute for Environment and Sustainability*; Monitoring Natural Resources for Development Co-operation; Global Monitoring of Forest Resources; Systematic Observations of Land and Oceans; Soil Data and Information Systems; Desertification, Land Degradation and Drought - Monitoring, Mitigation and Early Warning; Natural Hazards; Spatial Data Infrastructures  
*Institute for the Protection and Security of the Citizen*; Crisis Monitoring and Response Technologies; Information Support for Effective and Rapid External Action; Food Security Assessment; Development and assessment of statistical indicators for EU policies  
*Institute for Energy*; Photovoltaic Solar Electricity Resource Performance and Value; Quality and Performance of Biofuels; Reference System for Renewable Energy and End-Use Efficiency  
*Institute for Prospective Technological Studies*; Sustainable Agriculture and Rural Development; Agricultural Trade and Market Policies

is to provide relevant, reliable, ready-to-use and updated information to the EC services and to beneficiary countries/regions to improve decision-making processes. Whilst addressing all ACP countries the African continent is the focus for the initial FP7 phase. In effect, the ACP Observatory for Sustainable Development is a structured information source which delivers continental, regional and country analysis on environmental, renewable resources and security themes. It can become a *reference centre* for environmental and human-security geospatial datasets for Africa. These data are generated in-house or of known, peer-reviewed, provenance. A common, quality controlled, information source for Commission Services, partners in Member States, the Africa Union and partner countries across Africa would serve key aspects of the 2005 Paris Declaration on aid effectiveness; ownership of information and reporting services; greater capacity by coordinating support and avoiding parallel implementation structures; a basis for shared analysis and a means of promoting transparent and measurable performance assessment frameworks. Joint ownership of the ACP Observatory with the AU Commission and ACP Secretariat should be targeted by 2009. This would also strengthen African capacity in the context of multilateral environmental agreements e.g. UNFCCC, improve AU EU cooperation on regulatory issues e.g. FLEGT and improve African contributions to the development of global standards e.g. in the context of the Global Earth Observing System of Systems.

These few points are here briefly mentioned only to indicate that the engagement of EU Institutions in supporting African efforts in the Space sectors - initiated already more than three decades ago – is still particularly present. Furthermore, several AU State members have developed their own infrastructures related to satellites platforms and imageries treatment. The European Space Policy calls for “making full use of the potential of space systems for sustainable development, namely in support of developing countries, in particular in Africa.” JRC’s established network of partners across Africa will target the adaptation of space services to meet identified African users' needs. Synergy with ESA and EUMETSAT Africa programmes are assured through existing collaborations.

In this context the 8<sup>th</sup> Priority of AU-EU Partnerships Agreement will allow to keep on the traditional existing cooperation among State Members and Institutions of EU and the AU Structures and State Members. Two main action-lines will be further developed: i) greater levels of coherence between work plans and development policies; and ii) strengthened technical support to the African Union Commission, its Member States and the Regional Economic Communities (RECs).

Within this framework and in addition to the already mentioned activities, two main projects are considered relevant to be implemented: GMES (Global Monitoring for Environment and Security) Africa and AFREF (African Reference Frame). They aim to further bring satellite based technologies to the benefit of specific African development objectives.

## **PROJECTS**

1. GMES Africa: African Global Monitoring for Environment and Security
2. Implementation of the African Reference Frame (AFREF)



## **GMES Africa**

# **AFRICAN GLOBAL MONITORING FOR ENVIRONMENT AND SECURITY**

# GMES Africa: AFRICAN GLOBAL MONITORING FOR ENVIRONMENT AND SECURITY

## 1. Background

Satellites have become standard support tools in everyday life and have shown to bring benefits to the design, implementation and monitoring of public policies. They have also been shown to help in guiding management decisions in the sustainable exploitation of renewable resources, in protecting the environment and in guiding human assistance programmes. In Lisbon at the Africa-EU Summit the following engagement were taken concerning "GMES and Africa":

*"At the eve of the Lisbon Summit African and European bodies and entities agreed on December 7<sup>th</sup>, 2007, upon the Lisbon declaration on "GMES and Africa" whereby they declared "their commitment to work together, within the Joint Africa-EU Strategy and first Action Plan (2008-2010)~ adopted at the EU-Africa Summit in Lisbon on 8-9 December 2007, along the Lisbon Process on GMES and Africa, with the full involvement of the relevant African, European and ACP stakeholders and user communities, in line with the principles governing AU-EU strategic partnerships."*

*"In the wider framework of the Africa-EU Partnership on Science, Information Society and Space of the Africa-EU Action Plan 2008-2010, the Lisbon Process is the exercise aimed at drafting and consolidating an Action Plan for "GMES and Africa" partnership for approval at the third EU-Africa Summit, foreseen for end-2009. The European Commission will work together with the Commission of the African Union to promote this process and will prepare a draft Action Plan for "GMES and Africa" partnership at the end of 2008. The European Commission will maintain a close dialogue and consultancy with the EU Member States and ESA, as well as with other European stakeholders in GMES (EUMETSAT, relevant EU institutions, etc.) and with the current and upcoming EU presidencies; the Commission of the African Union will maintain a close dialogue and consultancy with its Member States and with the other African counterparts and institutions (Regional Economic Communities, relevant African institutions, etc.), as well as with user and providers communities as appropriate, during the whole process."*

*The Action Plan will be developed under the responsibility of the competent EU-AU Joint Experts' Working Group being set-up in the framework of the implementation of the Africa-EU Action Plan.*

*(from: Lisbon Declaration, Lisbon Process official texts)*

## 2. Project Description

Respecting the Lisbon Process this project will focus the preparation of a consolidated strategy and related action plan on GMES – Africa. They will be discussed and formally approved at the Africa –EU Summit of December 2009.

The first draft of the Action Plan on "GMES and Africa" partnership should be submitted end-2008 by the European and AU Commissions to the "EC-AUC Joint Experts Working Group" to the EU and African constituencies, for discussion.

From end-2008 to the third EU-Africa Summit, the European Commission and the Commission of the African Union will lead a consolidation process through the formal institutional cooperation mechanisms in place, aiming at a consolidated version of the Action Plan for endorsement at the next EU-Africa Summit.

### 3. Timeframe:

Estimated Duration	18 months	Planned Start	07/2008
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### 4. Objectives

Overall Goal:

*Description of overall goal*  
Formulation of an implementation strategy and related Action Plan for "GMES and Africa" Partnership for presentation and its final approval to the third EU-Africa Summit, foreseen for end-2009.

Objectives in detail:

No.	Description of objective
1	Formulation of implementation strategy and related action plan for GMES-Africa
2	Consultation of the concerned African and European actors and Authorities for amendments of the implementation strategy and related action plan for GMES-Africa
3	Formal presentation to the third Africa-EU Summit of end 2009

### 5. Activities and Estimated Cost

Priority: 1 = obligatory/ critical (minimum requirement); 2 = necessary; 3 = nice to have

No.	Activity	Description	Priority	Estimated Cost in €
1	Creation and mandate of a "EC-AUC Joint Experts Working Group"	The AUC-HRST Dpt and the JRC Services will prepare the Term of Reference for the nomination and mandate of a joint experts working group (WG) of maximum 6 experts that we will receive the duty to collect the necessary information and draft the document related to GMES-Africa. In addition to the 6 experts, a representative of the AUC-HRST Dpt and one of the concerned JRC services will be officially part of the WG. The WG will define the methodology of work, they will agree on the process to draft, collect feedback and presentation of the documents. The working group will meet regularly and it is calculated that in total will be necessary in average 4 full months of work each in the 18 months. 6*4*10.000 (including participation to specific workshops but excluded flight tickets).	1	240.000

2	Activities of the WG for the formulation of the first strategy and related GMES Africa Action Plan.	<p>In the strategy and related Action Plan for GMES Africa, the WG will :</p> <p>a. identify European and African users communities and stakeholders to be engaged in "GMES and Africa";</p> <p>b. execute a mapping exercise aiming at the identification of relevant past and current activities, infrastructure, capacities and programmes on which "GMES and Africa" can build on (including the work done by the GEO capacity building committee and other international experiences);</p> <p>c. formulate an efficient approach for a long-term dialogue among the European and the African stakeholders for the integration of African requirements and needs in the provision of GMES services to Africa. This long-term dialogue should structure the cooperation among the African and the European GMES stakeholders and user communities;</p> <p>d. identify the necessary elements to provide GMES services to Africa and to develop the complementary regional capabilities, and of a strategy to implement them. Data infrastructure initiatives in Africa, training programmes and capacity building on Earth Observation (e.g., in the context of GEO, AMESD, TIGER or regional initiatives) shall be fully identified and exploited;</p> <p>e. prioritise the requirements and actions based on the consultation with, and federation of, the African user communities and on the available portfolio and identified assets resulting from relevant projects, programmes, infrastructures and others;</p> <p>f. identify: gaps where action is needed; suitable programmes and funding instruments and schemes for the "GMES and Africa" partnership (e.g., in the context of GMES, EC research and development programmes, GEOSS, AMESD, ESA and EUMETSAT programmes, EDF, regional initiatives, bilateral cooperation, etc.), when local African capacities and infrastructures are not sufficient and having in view the harmonisation of all assets for the long term sustainable development of services and the regional capabilities;</p>	1	
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		<p>g.explore the typical communitarian instruments used for the general development of GMES, as well as the typical mechanisms in line with the EU external relation and cooperation policies, shall be pursued;</p> <p>h.propose: an approach to the governance and data access policy issues; and the setting of an timetable for long term future actions in the development of "GMES – Africa" Partnership.</p>		
3	Consultation of different stakeholders	<p>The WG will indicate the AUC HRST Dpt and the JRS Services on which stakeholders will be consulted for the verification and amendment of the draft of strategy / plan of action. The consultation will use different tools including workshops, virtual conferences and secreted websites. In the African Continent 5 workshops will be organised, at least one for each RECs with the presence of at least two representatives (one from the space sector and one from the competent Ministry) for each country. A similar action will be conducted in the EU Member States holding two workshops.</p> <p>The workshops have the aim to collect comments and allow a frank and open debate among thematic and geographic communities of practitioners, preferably by taking benefit of existing technical workshops and conferences, and via Internet consultation.</p> <p>In average each workshop will be attended by 25-30 experts. The cost of each workshop is estimated at € 35.000x7 = € 245.000.</p>	1	355.000
		<p>At the end of the first phase of consultation, a specific conference requesting will convene the Members of the AMCOST Bureau or they representatives, the representatives or their experts of the European and African institution concerned by space, and representatives of the Civil Society Organisations, will convene to discuss the strategy and the second amended version of the GMES Africa strategy – plan of action.</p> <p>The conference should be attended by 60/70 people. The cost is estimated at € 110.000.</p>	1	
4	Submission to the various AU and EU State members officials and AUC- EC staff	<p>Both AUC and EC submit for comments the document to their relevant bodies and institutions. The collected comments, suggestions and criticism will be channelled to the WG for their analysis and possible inclusion in the final text.</p>	1	

5	Document finalisation	Final home work of the WG and redaction of a final strategy/plan of action document. Editing and publication in at least 300 copies. The consultant cost is included in the consultancy, editing, secretarial activity and reproduction costs: total € 5000	1	5.000
6	Meeting with delegates participating to the AU-EU Summit	A specific meeting of presentation will be organised the day before or during the AU-EU Summit. The aim of this meeting is to provide details and answer to questions before the formal debate/discussion by the Summit participants.	1	
6	Discussion in Plenary by the AU-EU Summit participants	The Plenary session will have the opportunity to amend the text and provide it in its final formal version if approved.	1	
7	Reproduction of the final approved document	The text approved will be reproduced in 3000 copies to be widely disseminated in the AU and EU State Members, National and International Organisations and Institutions. Total cost: €15.000	3	15.000
		<b>Total cost Euro:</b>		<b>€ 615.000</b>

## 6. Expected results

- 1) The Strategy and the Action Plan for "GMES and Africa partnership" for their approval;
- 2) A wide and large consultation amending the first versions of the Strategy and the Action Plan;
- 3) Full awareness of the importance of the GMES Africa by the main Space African and European actors;
- 4) A final approval and endorsement of the documents related to GMES-Africa by third EU Africa Summit
- 5) The nomination of a "Space" Officer at the AUC-HRST Department, charged of the follow up and monitoring of the "GMES-Africa Plan of Action" implementation.

## 7. Performance Indicators

Indicator 1:

The action plan is drafted in due time and includes all component identified in the Lisbon process document

Indicator 2:

The technical consultation is completed: the draft action plan has been submitted for revision / amendment to the technical practitioners

Indicator 3:

The final version is printed in 3.000 copies for submission to the various technical and political instances.

Number of articles or media coverage reporting on GMES-Africa strategy/plan of action.

Indicator 4:

The political engagement is transferred in specific institutions at national regional and continental level: number of offices created with the responsibility of the GMES-Africa implementation or follow up

## 8. Risk Factors and Mitigation Measures

### 1. Delays

Delays in the start of the technical steps of the process may affect the final result and the non endorsement of the Strategy and related Plan of Action by the AU-EU Summit.

**RISK:** High,

Proposed Actions to minimize risk factor:

Naming as soon as possible the technical staff responsible in the AUC-HRST Dpt and in the JRC Services in charge of GMES-Africa; and in parallel name the 6 experts/consultant charged of the document drafting.

### 2. Insufficient funding

Despite that the total amount of funds has to be considered not extremely relevant, their availability is fundamental for engaging the concerned expert team of the WG and allow them to work fruitfully and quickly in the preparation of the different consultation phases and workshops.

**RISK:** High

Proposed Actions to minimize risk factor:

The JRC and the AUC-HRST have to name the two officers responsible of the implementation and the follow up of the draft preparation. The two officers should verify the funds opportunity within their own organisations and present a correct situation to the concerned stakeholders and space organisations in the AU and EU. Furthermore: 1) identify shortcut procedures for resource management at JRC; 2) speed up AMESD budget management; 3) identify alternative flexible funding resources.

### 3. Technical feasibility

The experts named in the WG have to be carefully selected for their competences, capacity to cope with multicultural context, and will to deal with GMES.

**RISK:** Low

Proposed Actions to minimize risk factor:

AUC-HRST Dpt and JRC Services have to carefully select the experts having experience, competence, and knowledge of the African continent from geographic and socio-cultural point of view.

#### 4. Absence of political engagement

The AU\_EU Summit participants do not approve or endorse the work presented to them.

**RISK:** Low

Proposed Actions to minimize risk factor:

The political will was already stressed in the last Summit with the GMES Declaration. A good involvement in the preparation of the concerned AU and EU Ministries during the consultation phases will allow solving possible misunderstandings or false interpretations.

### 9. Implementation Arrangements

AUC-HRST Dpt and the JRC will name an officer to cope specifically with this project. Before end of September 2008, the two officers will present the name of the six experts forming the ad hoc working group.

From October 2008 the Working group will meet, establish the methodology of work, sharing the tasks among themselves and structuring the work in order to present a first draft of the strategy and related action plan for the December 2008/ January 2009.

Starting from February the consultation phase will be launched via internet, websites, e-mail lists. In parallel and with the support of the local structures, the organisation of the 7 workshops will be launched (the WG member will share among them the participation to one or max two workshops) and concluded for April-May 2009. In July the Conference with the main stakeholders will be held at the AUC headquarters in Addis Ababa.

The WG will produce the last draft version before the end of September to its dissemination among the technical political institutions and organisations.

The Final version of the GMES-Africa Strategy and Plan of Action will be available 15 days before the AU-EU Summit and after its formal approval, within two months, will be edited and published in the 3000 copies.

The dissemination of the document will be duty of the AUC-HRST Dpt and JRC Services.

### 10. Monitoring and Evaluation

It will be in line with procedures agreed between the AU and the partners.



# **IMPLEMENTATION OF THE AFRICAN REFERENCE FRAME (AFRER)**

**This project has been built with the technical expertise provided by UNECA.**



## IMPLEMENTATION OF THE AFRICAN REFERENCE FRAME (AFRER)

### Background

Service delivery to people, households and businesses – land allocation and development permits, water connections, waste management, electricity and transportation, schooling and health provision, accessible markets, and security – requires linking places where people live and/or transact business and the conditions that subsist there with access to resources and the services they need. Therefore, all development projects, applications, services and products need to be geo-referenced. Such geo-referencing require uniform coordinate systems defined by the geodetic reference frame.

However, each African country has its national geodetic reference frame for producing maps and other geographic information products. These reference systems are usually based on local origins or datum, restricting their use to particular countries and making it difficult to accurately represent cross-border features on (sub) regional maps. For example, roads, watershed and ecosystem boundaries and wildlife reserves do not necessarily stop at national borders and may appear disconnected when national maps are joined together for regional planning and decision analysis. Work on regional/transnational infrastructure projects is normally undertaken in sections and a uniform mapping surface is required to ensure that the sections actually join up.

The uniform mapping surface is therefore essential for meeting the main objective of the African Union, as defined in the African Union Commission (AUC) Vision and Mission, which is to build a new integrated Africa, which asserts itself as a vibrant and dynamic force in the global arena. The promotion of regional integration was defined as one of the key areas for Africa's development, which will be based on a solid science and technology foundation. In 2005, and as a result of the transformation of OAU into AU Africa's Science and Technology Consolidated Plan of Action (CPA) was developed, and subsequently adopted by the AU Executive Council [decision EX.CL/Dec.254 (VIII)] at the Khartoum Summit, January 2006. The CPA introduces the Space Science and its applications as one of its flagship R&D programmes.

The African Geodetic Reference Frame (AFREF) will be based on current satellite positioning technologies. This puts it within the scope of the CPA, which introduced space science and its applications as flagship research and development (R&D) programmes. It has been conceived as a unified geodetic reference frame for Africa, which will be the fundamental basis for national and regional three-dimensional reference networks. The reference frame will be composed of a network of points where precise observations will be taken and used to define a Terrestrial Reference Frame that will result in a best-fit datum over Africa. The network would be at such a density that positioning professionals (surveyors, engineers, environmentalists, agriculturalists, mineral prospectors, etc) would always be within a reasonable distance of at least one such control point any place in Africa, with relevant parameters made freely available to practitioners.

AFREF will provide the geodetic infrastructure for regional and multinational projects requiring precise geo-referencing (e.g. three-dimensional and time dependent positioning, geodynamics, precise navigation, and geo-information). AFREF is also important for the AU peace and security border programme where the border programme involves the delineation and demarcation of borders between African countries. This requires that maps showing claims of various Member States should be plotted on a uniform mapping surface to harmonize them for comparison.

The AFREF will be fully consistent and homogeneous with the International Terrestrial

Reference Frame (ITRF) and will therefore be part of the global geodetic infrastructure that includes the European EUREF, the South American SIRGAS and the North American Datum (NAD). Such a global infrastructure is a prerequisite for many multi-disciplinary applications. The International GPS Service (IGS), a service of the IAG, supports a number of projects and applications dependent on the robust reference systems that are thriving at both global and regional levels. The classic IGS products, based on the global network provide information to generate global plate motion maps, enable strain and fault motion monitoring for earthquake hazard research and support dense regional GPS arrays. This fundamental reference system can further increase the understanding of complex earth science systems and assist and facilitate the solving of regional and global problems. Satellite positioning techniques also have the potential for long-term climate monitoring, ground-based weather forecasting, and long-term sea level trends at millimetres level. Low-earth orbiting satellites with on-board GNSS receivers will contribute to much greater understanding of the earth's gravity field and atmosphere, ionospheric mapping and research, precise timing and time transfer, among other scientific uses.

One of many practical applications of a global coordinate system is required is in aviation. Aircrafts need to have the origin and destination airports in the same coordinate system for navigation purposes. In this regard, the International Civil Aviation Organization (ICAO) has therefore adopted the World Geodetic System of 1984 (WGS84) as the system for specifying the absolute geographic coordinates of Aerodrome Reference Points (ARP), various airport facilities and radio navigational aids. Yet these same features need to be shown with other features on cadastral and topographic maps for national and local planning and service delivery. With the increasing use and application of GNSS, there is an urgent need to establish and determine the transformation parameters to relate positions derived with GNSS technologies in the global reference frame to other features in appropriate national mapping systems. By determining the transformation parameters between the current existing traditional national reference frame or frames, all legacy geospatial data and information based on traditional reference frames will not be lost or discarded. This implies determining the parameters for the best-fitting datum for Africa and establishing a network of points to realize the associated terrestrial reference frame – the twin objectives of the AFREF project.

## 1. Project Description

This project aims to support on-going activities and initiate new ones to establish a network of permanent GNSS reference stations to be used for computing the parameters of an African Geocentric Datum, and to be used as base stations for satellite positioning in Africa. In the first instance, it is aimed that there should be at least one such permanent, IGS-compliant station in each country. When completed, it is envisaged that users will not be more than 1000 Km from one such point any place in Africa, to be eventually densified to reduce that distance to 500Km or less.

This proposal is not for an entirely new project, but a revamp of an on-going initiative, with more formal coordinating arrangements reporting the African Ministerial Council on Science and Technology (AMCOST), an organ of the African Union.

The concept of a unified reference frame for Africa has been recognized since the 1980s and the African Doppler Survey (ADOS) project was intended to provide it. The ADOS project ended in 1986 without fully achieving its objectives, mainly because the difficulty in satisfying the simultaneous observations required by the Doppler Satellite technology used at the time. With the current technology of global navigation satellite systems (GNSS), it is no longer necessary to make the observations simultaneously. Through the continuity and permanency of global satellite-based geodetic infrastructure, observations taken at one time

can be linked to observations taken at subsequent locations and times with little degradation of accuracy. In fact, given the vast extent of Africa and logistical difficulties of coordinating between 53 AU member States, a more regional approach tied to a robust fiducial continental network seems more feasible and prudent. Realizing a *permanent* fiducial network throughout the continent is therefore a top priority.

Interest in the unified geodetic frame for Africa and in AFREF specifically has been maintained by:

- The United Nations Office for Outer Space Affairs (OOSA) which is the secretariat of the International Committee on GNSS, whose strategies include support for regional reference frames like AFREF;
- The International Association of Geodesy (IAG) which has a sub commission on AFREF (Sub Commission 1.3d) and its service the International GNSS Service (IGS) that provides support and expert advice to GNSS activities worldwide;
- The Economic Commission for Africa (ECA), whose subcommittee on Geoinformation of the Committee on Development Information, Science and Technology (CODIST-Geo) provides umbrella coordination of cartographic activities on the continent with a working group on AFREF that forms the nucleus of the International Steering Committee on AFREF;
- The African Organization of Cartography and Remote Sensing (AOCRS), jointly established by ECA and the (then) OAU to coordinate cartography in Africa, which is a co-chair of the AFREF Working Group of CODIST-Geo;
- The Regional Centre for Mapping of Resources for Development (RCMRD), which is also a co-chair of the AFREF Working Group, as well as the secretariat of the International Steering Committee and one of the computing centres currently in operation;

Other active collaborators and stakeholders include the Regional Centre for Training in Aerospace Surveys (RECTAS) and the European Umbrella Organization for Geographical Information (EUROGI).

The current approach has been to encourage African countries to install and operate the stations in their countries and submit data to the processing centre(s). However, this approach has led to very limited progress as many countries are not able to meet the initial cost outlay for the installation.

This proposal therefore seeks to build on the ongoing activities by mobilizing resources to install at least one permanent station in every African country, establish regional AFREF data processing centres and providing more formal coordination through the structures of the African Union Commission. The proposal will extend on-going activities, maintaining their momentum and ensuring that relevant policies, actors and geodetic infrastructures are in place to support Africa's development.

## 2. Timeframe:

Estimated Duration	24 months	Planned Start	As soon as funds are available
Total cost	USD 2,915,000	(Euro 2.000.000)	

### 3. Objectives

#### Overall Goals:

The formal objectives of AFREF are to:

- Define the continental reference system of Africa. Establish and maintain a unified geodetic reference network as the fundamental basis for the national 3-d reference networks fully consistent and homogeneous with the global reference frame of the ITRF;
- Realize a unified vertical datum and support efforts to establish a precise African geoid, in concert with the African Geoid project activities;
- Establish continuous, permanent GNSS stations such that each nation or each user has free access to, and is, at most, 1000km from such stations;
- Determine the relationship between the existing national reference frame or frames and the ITRF to preserve the legacy geospatial data and information based on the existing reference frame;
- Provide a sustainable development environment for technology transfer, so that these activities will enhance the national networks, and numerous applications, with readily available technology; and assist in establishing in-country expertise for the implementation, operation, processing and analysis of modern geodetic techniques, primarily GNSS.
- Implementation of the Africa's Science and Technology plan of Action.

The four main goals associated with the project are:

- A network of permanent GPS reference stations that will define the African Reference Frame for practitioners to use for position determination, and forming part of the global geodetic infrastructure. The stations will conform to IGS standards, continuously collecting data and transmitting same to relevant data processing centres.
- A network of regional data processing centres to receive data from stations in their respective regions, process them and transmit the processed data to a designated main data processing and archiving facility.
- A data archiving and dissemination facility to compute parameters for the African reference frame and disseminate same continuously to users.
- A network of African and European Geodesists sharing lessons and working together to realize the objectives of the AFREF project, extend and densify the network, and continuously compute and disseminate improvements and corrections to the parameters of the African reference frame.

## Objectives in detail

No.	Description of objective
1.	<p><b>To install 53 reference stations dedicated to AFREF, to achieve the initial coverage of at least one in every country.</b></p> <ul style="list-style-type: none"> <li>• Through the mobilization of resources.</li> <li>• Preparation of specifications for reference stations.</li> <li>• Dissemination of ToR and request for proposal.</li> <li>• Final selection and award of successful bids to procure and install equipment at stations.</li> </ul>
2.	<p><b>To establish five regional data processing centres.</b></p> <ul style="list-style-type: none"> <li>• Mobilization of resources to procure relevant computer hardware, peripherals and software</li> <li>• Preparation of terms of reference and specifications for the data processing centres.</li> <li>• Dissemination of ToR and call for bids for existing institutions relevant Internet infrastructure and core administrative support already exist to co-locate the centres; dissemination of specifications for the centres</li> <li>• Identification of suitable/appropriate institutions.</li> <li>• Final selection and award of procurement and installation contracts to successful bids.</li> </ul>
3.	<p><b>To establish two data archiving and dissemination facilities.</b></p> <ul style="list-style-type: none"> <li>• Develop specifications and selection criteria for data archiving and dissemination facilities.</li> <li>• Develop ToR and call for bid to establish facilities.</li> <li>• Review the facilities of the five regional data processing centres</li> <li>• Identify two that will be upgraded with additional facilities to become the main data processing, archiving and dissemination facilities for AFREF</li> <li>• Final selection and award of procurement and installation contracts.</li> </ul>
4.	<p><b>Compute the parameters of the African Reference Frame.</b></p> <ul style="list-style-type: none"> <li>• Preparation of memoranda of understanding for technical partnerships with experienced institutions outside Africa, notably, International GNSS Services, EuroGeographics, EUROGI, the University of Bern, Switzerland, and the University of Lisbon, Portugal.</li> <li>• Establish scientific network of African and external experts to advise on computation methodology.</li> </ul>
5.	<p><b>Support Member States to align national coordinate systems. to AFREF</b></p> <ul style="list-style-type: none"> <li>• Densify AFREF network by adding other national and scientific GNSS projects</li> <li>• Build capacity of member States to conduct necessary field work and computation of parameters</li> </ul>

## 4. Activities and Estimated Costs

No.	Activity	Description	Deliverables	Priority	Estimated Cost in US\$
1.	Strengthen AFREF coordination arrangements	<ul style="list-style-type: none"> <li>• Reformulate the existing “International AFREF Steering Committee” to the AFREF Management Advisory Committee</li> <li>• Create a new AFREF Scientific Advisory Committee of between six ad 10 very accomplished geodesists</li> <li>• Convene four joint meetings of the management advisory and scientific advisory committees over the first two years</li> <li>• Arrange for the scientific advisory committee to conduct 12 backstopping missions to selected support member States, where expertise is seriously lacking</li> </ul>	<ul style="list-style-type: none"> <li>• A revamped management structure reporting jointly to ECA’s CODIST and AU’s AMCOST</li> <li>• Backstopping support to about 12 member States most in need of technical support</li> </ul>	1	\$120,000
2.	Recruit a full-time AFREF network coordinator	<ul style="list-style-type: none"> <li>• Develop job description for a technical secretary at equivalent of UN P3</li> <li>• Advertise, review, interview and select candidate</li> </ul>	Effective coordination of the activities of AFREF.	1	65,000
3.	Installation of 53 reference stations to achieve “Level One” coverage	<ul style="list-style-type: none"> <li>• Prepare station specifications for AFREF reference stations, reviewed by the management and scientific advisory committees</li> <li>• Prepare explanatory note on the concept for AMCOST to adopt</li> <li>• Negotiate with GNSS equipment and services providers for an AFREF pricing structure</li> </ul>	<ul style="list-style-type: none"> <li>• Initial network of stations for a robust computation of the AFREF parameters</li> <li>• Initial network of stations in each country for practitioners to base their positioning</li> <li>• Negotiated</li> </ul>	1	530,000

No.	Activity	Description	Deliverables	Priority	Estimated Cost in US\$
		<ul style="list-style-type: none"> <li>• Circulate bid documents and select successful bidders to supply and install</li> </ul>	pricing structure for AFREF equipment and services		
4.	Establish five regional data processing centres and two data archiving and dissemination facilities	<ul style="list-style-type: none"> <li>• Develop specifications and terms of reference for regional processing centre</li> <li>• Call for bids from existing regional institutions and centres with requisite Internet infrastructure and core administrative support and select centres</li> <li>• Call for bids to procure and install equipment</li> <li>• Select suitable centres and suppliers</li> <li>• Select two of the five centres to have additional equipment for data archival and dissemination</li> </ul>	<ul style="list-style-type: none"> <li>• Five operational regional AFREF data processing centres</li> <li>• Two of the five as main computing, archiving and dissemination centres</li> </ul>	2	1200,000
5.	Organize Experts' Implementation Workshop	<ul style="list-style-type: none"> <li>• Engage a consultant to prepare a research paper, with recommendations on the issues to be decided on.</li> <li>• Prepare vendor-independent specifications and implementation guide in multimedia toolkit format.</li> <li>• Call for proposals for supplemental papers to be presented</li> <li>• Organize workshop and document agreed parameters</li> </ul>	<ul style="list-style-type: none"> <li>• Complete workshop material in multimedia toolkit format</li> <li>• Well-conducted workshop providing training and information for the country teams to implement and manage the installations</li> <li>• Transfer of knowledge from more partners with more experience to the African counterparts</li> </ul>	1	300,000
6.	Organize Policy Makers'	<ul style="list-style-type: none"> <li>• Prepare information booklet targeted at policy makers</li> </ul>	<ul style="list-style-type: none"> <li>• Information booklets addressed to</li> </ul>	1	250,000

No.	Activity	Description	Deliverables	Priority	Estimated Cost in US\$
	Workshops	<ul style="list-style-type: none"> <li>Organize session for full senior bureaucrats in charge of ministries/departments of mapping and science and technology</li> </ul>	<ul style="list-style-type: none"> <li>policy makers</li> <li>Five sub regional workshops for policy makers</li> </ul>		
7.	Identify on-going GNSS projects	<ul style="list-style-type: none"> <li>Distribute questionnaire to collect data about national GNSS facilities and ongoing scientific GNSS projects</li> <li>Organize AFREF technical partners' forum</li> </ul>	<ul style="list-style-type: none"> <li>Memoranda of understanding with GNSS projects to include their stations in an AFREF consortium</li> </ul>	2	50,000
8.	Capacity Building for National framework alignment	<ul style="list-style-type: none"> <li>Develop documents and toolkits for fieldwork and computations to align national systems</li> <li>Conduct workshops with regional data processing centres</li> <li>Prepare e-learning materials on all aspects of AFREF and deploy</li> </ul>	<ul style="list-style-type: none"> <li>Enhanced capacity of practitioners at national level</li> <li>Technical material available on e-Learning platforms</li> </ul>	2	400,000
			<b>Total USD</b>	<b>\$</b>	<b>2,915,000</b>
			<b>(Total Euro</b>	<b>€</b>	<b>2.000.000)</b>

## 5. Expected Results

- 45 new AFREF reference stations installed and continuously observing and submitting data to the computing centres
- 5 regional data processing and computing centres
- 2 (of the 5 processing centres) with higher level computing and archiving capabilities
- AFREF steering committee reporting to both the African Union's AMCOST and ECA's CODIST
- Defined parameters for the unified African geodetic reference frame, consistent with ITRF and forming part of global geodetic infrastructure
- Continuous web-based access to positioning parameters everywhere in Africa
- Multimedia toolkit training material for professionals and technical practitioners
- Policy-level booklet on geodesy, positioning and their roles in development
- Capacity building
- Experts

## 6. Performance Indicators

Indicator 1:

Advisory Board's meetings regularly held 2 times each year

Indicator 2:

Reduced distance to access free generated data at maximum of 1000 km radius.

Indicator 3:

Increased information and data flow through the use "Information Charter" for the day-to-day creation, organization and operation of the network.

Indicator 4:

5 Regional Centres actively delivering geodetic reference data for Africa

## 7. Risk Factors and Mitigation Measures

In addition we feel that the overriding purpose for this project is to achieve the fourth major goals, which are:

1. A network of permanent GPS reference stations that will define the African Reference Frame.
2. A network of regional data processing centres to receive data from stations in their respective regions, process them and transmit the processed data to a designated main data processing and archiving facility
3. A data archiving and dissemination facility to compute parameters for the African reference frame and disseminate same continuously to users.
4. A network of African and European Geodesists sharing lessons and working together to realize the objectives of the AFREF project, extend and densify the network.

Based on this consideration, we have assessed risks associated with each of these goals as follows:

GOAL 1: A network of permanent GPS reference stations that will define the African Reference Frame

i. Diverse geodetic reference frames in Africa

So far, each African country has its national geodetic reference frame for producing maps and other geoinformation products. These reference systems are usually based on local origins or datums, which restrict their use to particular countries and make it difficult to accurately represent cross-border features on (sub) regional maps..

Risk: Medium

Proposed action(s) to address the risk factor mentioned:

Establish and maintain a unified geodetic reference network as the fundamental basis for the national 3-d reference networks fully consistent and homogeneous with the global reference frame of the ITRF

ii. Lack of participation of Member States

Due to national security considerations, member countries may not want to actively participate in the AFREF project.

Risk: High

Proposed action(s) to address the risk factor mentioned:

A clear data protocol should be developed and approved under the auspices of AMCOST

**GOAL 2: A network of regional data processing centres to receive data from stations in their respective regions**

i. Insufficient technical capacity, tools and resources to collect and analyse data in real time

The regional Centres may lack the detailed research and technical capacity to undertake the different assignments associated with a project of this scale.

Risk: Low

Proposed action(s) to address the risk factor mentioned:

Partnership with well recognised and qualified technical institutions that have experience and capacity with receiving and processing large amounts of data from multiple African countries.

ii. Lack of expertise to undertake research of this magnitude

Since the project need high skilled technical personnel to operate it is critical that they be proficient on data processing as well as being aware that the program will help countries in-country expertise for the implementation, operation, processing and analysis of modern geodetic techniques, primarily GNSS.

Risk : Medium

Proposed action(s) to address the risk factor mentioned:

The project management will organise several capacity building workshops.

**Goal 3: 3. A data archiving and dissemination facility to compute parameters for the African reference frame and disseminate same continuously to users**

i. Insufficient communication infrastructures for access to network and system data by users and service provider (facility)

Operational procedures for information dissemination and flow are fundamental for the project's activities. Member States may not have an adequate communication infrastructures with a view to their utilization for data receiving and broadcasting. Indeed, there is currently little or no communications infrastructure going across neighbouring African countries.

Risk: Medium

Proposed action(s) to address the risk factor mentioned:

The project will ensure that functional networks are set up, strengthened and adapted to data flow between users and the facility centre.

**Goal 4: A network of African and European Geodesists sharing lessons and working together to realize the objectives of the AFREF project, extend and densify the network.**

i. Initial financial resources

So that the implementation of the project attains the expected outcomes, it will need a significant human and financial resource. For this purpose, it is expected initial financial contribution from funding mechanisms such as development partners and others donors.

Risk: High

Proposed action(s) to address the risk factor mentioned:

Lobbying towards development partners to secure the initial funding resources needed to implement the project activities

ii. Lack of political support

Political leaders might not be fully supportive of the relevance of having permanent stations whilst giving more priority to other issues.

Risk: Medium

Proposed action(s) to address the risk factor mentioned:

More brainstorming sessions, awareness creations, participation and presentation in forums and workshops. Alignment with AU/NEPAD and Millennium development goals. Regular high-level feedback on progress, status, impacts and outcomes.

## 8. Implementation Arrangements

The project will be implemented using a model that involves a Project Coordinator and with an International Management Advisory Committee on AFREF (IMACA) responsible for the overall project management. An International Scientific Advisory Committee composed of high-level scientists around the world, will serve as advisory board on key scientific elements of the project. The African Union commission (AUC) will serve as the political umbrella, through the department HRST which will oversees and advises on the project implementation, by respecting the technical structure of the African Union. .

## 9. Monitoring and Evaluation

It will be in line with procedures agreed between the International Management Advisory Committee and others stakeholders.

