



**Global Partnership Project on
Information and Communication Management
for
Agricultural Research and Development
(ICM4ARD)**

Fourth Draft

October 2004



Summary

1 Project Title:	Global Partnership Project on Information and Communications Management for Agricultural Research and Development (ICM4ARD)
2 Project Proposed by:	Global Forum on Agricultural Research (GFAR), the Association of Agricultural Research Institutions in the Near East and North Africa (AARINENA), the Asia-Pacific Association of Agricultural Research Institutions (APAARI), the Central Asia and the Caucasus Association of Agricultural Research Institutions (CACAARI), the Forum for Agricultural Research in Africa (FARA) - together with the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA), the Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF) and the Southern African Development Community (SADC) -, and the Foro Regional de Investigación y Desarrollo Tecnológico Agropecuario (FORAGRO)
3 Project Goal:	Strengthen national, regional and global agricultural information systems to satisfy the needs of an emerging, more knowledge intensive agriculture that now needs information on a wider range of topics and beyond that available with local communities
4 Purpose of the Project:	To enable more equitable access to agricultural information globally for ARD stakeholders through improved ICM and more efficient use of ICT in National, Regional and Global agricultural information systems
5 Project Outputs:	<ol style="list-style-type: none">1. Improved Capacity in NARS, ROs/SROs, GFAR leaders for advocating development of ICT enabled AIS at their respective levels2. Capacity Development of ICT managers and staff of NAIS, Sub-RAIS (S-RAIS) and RAIS in further developing NAIS and RAIS3. Integration of and equitable access to National, Regional and Global Agricultural Information through GLOBAL.RAIS Web Ring4. New Governance structures for ICT enabled information systems at regional and global levels
6 Project Duration:	Three (3) Years
7 Target Institutions and Beneficiaries:	<ol style="list-style-type: none">1. NARS and ARD Stakeholders2. ROs/SROs including AARINENA, APAARI, CACAARI, FARA, ASARECA, CORAF, SADC and FORAGRO and their members and stakeholders
8 Collaborating Institutes:	<ul style="list-style-type: none">• GFAR• Regional and Sub-Regional Organizations• NARS and ARD Institutions• FAO and FAO Waicent Outreach• EARD-InfoSys+• CGIAR and its 15 Centers• Commonwealth of Learning• CTA• CIRAD• ZADI• NWO
9 Total Budget:	USD 3,963,000.00

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3. Background with conclusions from completed activities as of October 2004

3.1. Emergence of a more knowledge intensive agriculture and new stakeholders

A more knowledge intensive agriculture, fuelled by demands of an increasingly global agricultural commodities market and the need for environmental stewardship, is emerging. Information needed by agricultural communities, not only of farmers but all members of agricultural commodity market chains including consumers, now include a wider range of topics and go beyond that from their local communities. A host of new stakeholders such as Farmer' Organizations, NGOs, CSOs and private sector entrepreneurs have begun to fill emerging niches that traditional ARD Institutions have not been able to address in organizing and disseminating this new information and knowledge. The ability to access and exploit this new information and knowledge is defining the well-being of agricultural communities the world over and, more so, in countries of the South where, in addition to technological, there are social, economic and political barriers that limit access to this information. Globally, all stakeholders to agricultural research and development are now demanding cohesive efforts to enable more equity in access to agricultural and related information and ensure that even the most disadvantaged agricultural communities are able to access relevant and reliable information they need.

3.2. Regional and Global Agricultural Information Systems

Beginning in 1999, GFAR organized a Global consultation at Rome on improving access to agricultural information globally (GFAR, 1999a & 1999b; Chaparro, 1999). APAARI, in the same year initiated a Regional Agricultural Information System (RAIS), Asia Pacific Agricultural Research Information System (APARIS), to share and exchange information in the Asia-Pacific region. Similarly, during the same period the European Initiative for Agricultural Research and Development (EIARD) initiated an information system to support and provide tools to manage National Agricultural Information Systems (NAIS) in Western Europe. The Sistema de Información Científica y Tecnológica del Sector Agropecuario en las Américas (INFOTEC) was also initiated as a RAIS to share information in Central and South America and the Caribbean, while related efforts by Inter-American Institute for Cooperation in Agriculture (IICA) and Food and Agricultural Organization of the United Nations (FAO) created the SIDALC (Agricultural Documentation System for Americas). In 2001, AARINENA established a prototype AARINENA-RAIS. While these RAIS have gained presence and initiated sharing and exchange of information regionally, their foundations - member NAIS - remain weak. Global sharing and exchange of information also remains weak due to weak integration and linkages between NAIS

and RAIS and because of an incomplete and sometimes in-coherent information system *architecture* and lack of gateways for access to this information at national, regional and global levels.

Since 1975, FAO has been supporting the *International information system on agricultural science and technology*, known as AGRIS, with the collaboration of wide range national regional and international organizations including the GFAR family. The original conception of AGRIS, was a international, multilingual, and participatory system focused on a centralized bibliographic database contributed to be a network of AGRIS *Input Centres* (over 100 national and international). The network was supported by FAO with co-ordination, tools and methodologies, data processing, training, and technical support. In 1998, at the last full AGRIS-CARIS Technical Consultation, the member states of FAO recognized that the original conception needed to be revisited given that a set of problems had gradually emerged. An analysis showed the major issues as being that: (i) it was difficult access the full text of documents, (ii) coverage of the literature was very incomplete, (iii) many independent systems had arisen which were not linked to the main AGRIS database, and (iv) single national input centres were increasingly unable to cover the whole of their country. Following this analysis, a *new vision* for AGRIS was developed in 2002 through a wide-ranging consultative process with the members of the network. This vision comprised a revised set of principles including a decentralized approach, a greater diversity of participating organizations, a strengthened role in capacity building, a focus on full text documents, greater availability of associated information about activities, organizations, and people, and a set of web-enabled standards, methodologies, and tools.

The AGRIS vision fits perfectly in the new agenda developed by the GFAR global consultations as regards to scientific and technical information. FAO has fully supported this consultative process leading to the development of this proposal given the shared goals and objectives of GFAR, its regional fora and FAO.

3.3. The GLOBAL.RAIS Project of GFAR

To devise means to satisfy the stakeholders demand for a more equitable access to agricultural and related information as expressed at GFAR Triennial Conferences at Dresden and Dakar, consultations (AARINENA, 2003; APAARI, 2003; CACAARI, 2004; FARA, 2004; FORAGRO, 2004; GFAR, 2004a and 2004b) spread over nearly two years as a part of the GLOBAL ALliance of the Regional Agricultural Research Systems (GLOBAL.RAIS) project of GFAR¹ were held with representatives of National Agricultural Research Systems (NARS), sub-regional and regional agricultural research and development organizations. These consultations indicate that the state of access to agricultural and related information globally differs greatly among countries and regions. Some countries and regions are relatively better placed in accessing agricultural and related information as they have better ICT infrastructure, greater capacity to use ICT in their information systems, more effective information and communications management systems and more cohesion in and among their agricultural systems in sharing and exchange of information. Other countries, especially the poorer in Asia, Africa, Central and South America and the small island states of the Pacific and the Caribbean, have very weak ICT infrastructure and very little capacity, especially human skills, to effectively manage, share and exchange agricultural information. This affects these countries' and their agricultural communities' ability to access new technologies, develop the skills needed to practice the more market-oriented agriculture emerging globally and participate equitably in national, regional and global markets and also to maintain environmental stewardship. This, in turn, affects livelihoods and contributes to continued poverty and poor quality of life.

¹ Supported by the European Commission

GFAR, through the GLOBAL.RAIS consultations, identified 4 main issues for intervention to enable greater equity in access to agricultural information globally. These include:

- The need to strengthen the capacity of NARS leaders to **advocate**, articulate appropriate policies and strategies, attract more resources and greater investment for further development of ICT enabled NAIS and lead further development of agricultural information systems (AIS);
- **Capacity development**, in terms of infrastructure, institutions and human skills, among stakeholders to ARD to create, manage, share, exchange and use scientific and technical information, technology related information, research and research management information, extension, outreach and market information etc. for agricultural innovation and development;
- Greater **integration of national and regional agricultural information systems** and easier access to them, especially websites, through a GLOBAL.RAIS Web Ring and cohesive activities for improved management and more seamless sharing and exchange of information, experience and knowledge in agricultural information management through a Knowledge Network;
- The need to establish appropriate **governance structures** such as task forces and steering committees for global, regional and sub-regional AIS of GFAR, AARINENA, APAARI, CACAARI, FARA, ASARECA, CORAF, SADC and FORAGRO to promote and support more equitable access, sharing and exchange of agricultural information through ICT enabled AIS.

It is clear that the broad nature of the four issues as identified above cannot be tackled in the short-term through one project. Instead, an achievable set of objectives within the four issues has been defined in this proposal. The project is designed to accommodate lessons learnt from past experiences and to build on existing institutions and processes wherever possible.

3.3.1. Advocacy role of NARS Leaders

a) Basic Concept

The basic building blocks of global and regional AIS are the NAIS. These, as they now evolve in several countries, have several component information systems and services reflecting the participation of the multiple stakeholders as also attempts to satisfy the needs of agricultural information to a variety of clients. However, without clear leadership, policies, strategies and investment, these systems remain weak and lack cohesion.

A major proportion of all information content, especially scientific, technical and technological is held in information repositories of publicly funded ARD Institutions such as of the NARS. Large investments are needed to enable this information to be processed digitally for electronic dissemination, sharing and exchange through ICT enabled information systems and be accessible to user communities. Lack of investment is a major cause in the slow development of NAIS of the South countries at present. Since, most of the information content is with the ARD Institutions of the NARS, its leaders are the key to forming appropriate policies and strategies and in attracting resources and investment to the development of NAIS.

b) Rationale

Most NARS leaders, however, have limited exposure and awareness of the technological and technical issues around ICT enabled information systems and the links between investment in information and knowledge systems and Institutional performance. Lack of impact assessments and clear indicators about the potential impact of these systems on agricultural development also contribute to their lack of ability to attract resources and investment for ICT enabled information systems. To have full scale applications of relevant and useful ICT enabled NAIS, a NARS leadership which is more aware of the various facets of policies and strategic issues related to ICT and agricultural development, armed with facts about the impact of ICT AIS on agricultural development, capable of attracting national and international investment is required and leading information systems development and management is required.

c) Completed Activities

There have been interventions by international development and donor agencies and regional organizations to develop this leadership and advocate the further development and strengthening of ICT enabled AIS at global, regional and national levels. GFAR initiated a global consultation on improving agricultural research and development information systems in 1999. FAO has also played a significant role in advocacy through its leadership of the AGRIS initiative and the development of the new AGRIS/CARIS and its Consultation on Agricultural Information Management (COAIM) since 2000. Technical Centre for Agricultural and Rural Cooperation (CTA) has also played a role in advocacy through its capacity development programs and publications, especially *ICT update*.

At the regional level, APAARI has held regular NARS leaders' level expert consultations on the development of ICT enabled AIS at national and regional levels in the Asia-Pacific region since 1999. FORAGRO has similarly been active in the advocacy of ICT enabled AIS in the Americas. The Caribbean Agricultural Research and Development Institute (CARDI), through the regional Caribbean Agricultural Information Service (CAIS), has also been supporting the development of NAIS in the Caribbean. In Africa, ASARECA has achieved success in developing a Regional Agricultural Information Network (RAIN), which plays an advocacy role towards the development of ICT enabled information system.

These advocacy related activities have resulted in significant impact, measured through the increase in the number of agriculture related websites, in some countries of Asia and South America. However, the NAIS, in Africa, Central Asia and the Caucasus and many poorer countries of Asia and Central and South America remain in their infancy or are not yet developed.

d) Proposal

Thus, activities that contribute to advocacy for more rapid establishing ICT enabled NAIS through appropriate policies and strategies, more investment, and capacity development to develop, manage and integrate information systems across the world to bring more equitable access, sharing and exchange of agricultural information is an urgently needed intervention. The GFAR as a major representative stakeholder body to ARD thus has an important role to advocate and build capacity for advocacy for greater equity in access to agricultural information.

3.3.2. Capacity Development

a) Basic Concept

The GLOBAL.RAIS consultations reveal that there have been some activities to develop human skills and ICT infrastructure for managing ICT enabled scientific and technical information systems, extension and outreach information systems and, to some extent, agricultural

commodities market information systems at national levels in the South countries. However, these efforts have been sporadic, associated to specific development and donor activities in ARD and with weak coverage compared to the needs of the NARS and national ARD Institutions.

b) Rationale

With the NAIS being weak in most countries, the primary need is for training ICT managers and those associated with ICM on the conceptual basis, development and management of the NAIS. The NAIS will have research projects including their technological outputs and innovations, ARD Institutions as also Experts databases as the core information content that will be shared within and across national and regional systems training in the development and management of these web accessible data bases becomes the second critical area in capacity development of the NAIS. Also, as the NAIS and RAIS will constitute of information systems with distributed databases at various levels, this area will also need skills development through training.

c) Completed Activities

FAO has organized and conducted, over many years, training programs related to the management of scientific and technical information within the AGRIS Network. In view of the great number of member countries to be trained, several training workshops were organized in collaboration with regional partners (most recently International Center for Agricultural Research in the Dry Areas (ICARDA), Arab Organization for Agricultural Development (AOAD), South East Asian Regional Center for Graduated Study and Research in Agriculture (SEARCA) and ASARECA). Training workshops are also being organized at the national level in the framework of country initiatives and networks, allowing larger numbers of people within countries.

In response to the increasing demand from member countries to empower them to manage information more effectively, FAO, in partnership with selected international, regional and specialised agencies, has started to develop a comprehensive suite of distance learning resources for information management and exchange known as the Information Management Resource Kit (iMARK).

The underlying concept of iMARK is based on the premise of a truly collaborative distance learning initiative, in which FAO acts as a catalyst working with strategic partners, which include the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), the Consultative Group on International Agricultural Research (CGIAR), the Technical Centre for Agricultural and Rural Cooperation (CTA), GFAR, and UNESCO, to build a knowledge base to bring new concepts, attitudes, approaches, and tools for effective information management to an internationally widespread community. The initiative is consistent with the GFAR principle of subsidiarity, additionality and partnership in seeking to bring together and build upon existing resources, extensive experience and subject matter expertise, while substantially reducing duplication of effort in capacity building in the information management sector. Learning materials are being developed as a series of modules on CD-ROM, introducing the latest concepts, approaches and tools for information management, using interactive tutorials specifically designed for individual self-paced learning, supplemented by an Internet-based online community for learners and subject-matter experts.

The first iMARK module entitled *Management of Electronic Documents* was developed in the context of the needs identified in the AGRIS network, and was released in English in November 2003. This module will be complemented by the release at the end of 2004 of the module entitled *Digitization and Digital Libraries*. Other iMARK modules under development include *Building Electronic Communities and Networks* and *Investing in Agricultural Information: Issues and Options*, with the latter being aimed at managers and decision-makers.

Similarly, CTA has supported training in ICT use and information management in the African, Caribbean and Pacific (ACP) countries. CIRAD has also conducted training in Francophone countries of Africa in the management of scientific and technical information, research management and market information systems. CGIAR Centers have significantly contributed to development of national capacities to manage information. For example, the International Service for National Agricultural Research (ISNAR), has provided training to more than 26 NARS in Research Management Information Systems (RMIS) around the use of INFORM, an RMIS application. Similarly the Department for International Development (DFID), the International Bank for Reconstruction and Development (IBRD) and the United States Agency for International Development (USAID) among many International Institutions have supported projects aimed at strengthening national information capacities.

However, regional organizations have only recently organized capacity development with collaboration of national systems. APAARI recently conducted a training programme on development of NAIS for some countries in South Asia, South East Asia and Pacific Countries.

d) Proposal

These areas of training have not been covered at national levels and there has been little effort to build human skills in the development and management of a NAIS, in managing distributed information systems that constitute a NAIS and RAIS and in integrating the various categories of agricultural information and information systems needed by various clients to agricultural information nationally, regionally and globally.

3.3.3. *Integration of national, regional and global information systems*

a) Basic Concept

Integrated access to national, regional and global agricultural information has potential to bring even greater economies of scale in ARD than at present. Global ARD systems such as the CGIAR network and the FAO's World Agricultural Information Centre (WAICENT) and the multitude of regional ARD networks have already demonstrated their impact to world development ushering in global food and nutritional security.

It must be made clear that *integration* of AIS, in the context of this project, is primarily to enable a larger number of users more easy access to more and geographically spread sources of information as also create capacity to share and exchange information across regions and globally and not *centralize* information availability and access.

b) Rationale

The use of new ICTs, especially the Internet brings new dimensions to the sharing and exchange of information for ARD across communities and beyond geographical, disciplinary, eco-regional, thematic and cultural boundaries.

c) Completed Activities

Attempts to integrate global ARD information systems has been made jointly by the FAO and CGIAR through their FAO-CGIAR Infofinder which provides joint search for documents on the various FAO and the 15 CGIAR Centers websites.

The suggestions made in the GLOBAL.RAIS consultations have been to promote the development of decentralized information systems using common or at least compatible data

structures, core sets of standards/meta-standards that can be added/modified to suit the needs of individual NAIS and yet enable access and sharing of information through a common multi-host search engine accessible through the Electronic Global Forum on Agricultural Research (EGFAR), RAIS, NAIS and other prominent ARD websites.

In common with the output of the GFAR consultations, the new AGRIS vision also advocates decentralization while also stressing the need for greater integration through the use of common standards and tools. The quality and structure of information through the use of coherent standards is important in the context of exchange between systems. FAO has been developing its normative role in the context of integration of agricultural information systems in general, not just AGRIS, and is doing so in close collaboration with a wide range of experts and specialist organizations. These efforts will shortly lead to the establishment of a *Clearinghouse* for agricultural information systems.

These activities of FAO are in correspondence with the demands made by GFAR stakeholders during the global and regional consultations and indicate the need for close partnership and collaboration between activities by FAO and this project.

An example of such as system applied in health is *Shared* (www.sharingpoint.net). A similar web enabled, integrated AIS the GLOBAL.RAIS Web Ring is proposed with its development led by GFAR through its EGFAR website. The EGFAR Web Ring will further facilitate access to global, regional and national ARD information content repositories, support the development and adoption of common information management tools, processes and standards, distributed open access archiving and publishing tools and *open* approaches to intellectual property rights through the Clearinghouse coordinated by FAO.

Integration of agricultural information systems and exchange of agricultural information will also be enhanced by the development of the conceptual basis of NAIS and the necessary resources and tools kit for their management. These resources and tools will be packaged in close collaboration with the iMARK initiative which will underpin the capacity building component and facilitate their uptake.

d) Proposal

The GLOBAL.RAIS consultations have indicated the vitality of the role human interactions between the RAIS and NAIS ICT managers are in creating common visions and implement joint activities for ARD information sharing and exchange. iNARS, the electronic learning network that has now been functional for over 3 years and has more than 300 ICT managers of ARD Institutions across the World as participants, has been used in these consultations. As a supplement to the EGFAR Web Ring, a GLOBAL.RAIS Knowledge Network that promotes and contributes to sharing information, experience and knowledge on the management and integration of ARD information at national, regional and global levels will also be developed through support to iNARS and for regular face-to-face interactions of NAIS and RAIS ICT managers.

Another core component to integration of AIS and sharing and exchange of agricultural information is inter-regional cooperation between regional organizations in further developing the conceptual basis of NAIS, defining its functional requirements and a toolkit for NAIS management proposed by AARINENA and EARD-InfoSys+ in collaboration with FAO.

3.3.4. Governance Structures for Global and Regional Agricultural Information Systems

The GFAR and Regional Organizations (ROs) will require new and strengthened governance structures to advocate, promote and support EGFAR and the RAIS. At the moment, GFAR's ICT activities function through a program mode. AARINENA, APAARI and INFOTEC have steering

committees for their respective RAIS. FARA has recommended the setting up of a Task Force for its RAIS. ASARECA operates its sub-regional information in a Network program mode. FAO also supports these developments.

A GFAR level Task Force will be needed:

- To coordinate advocacy for ICT enabled information systems at the global, regional and national level;
- Collate information and publish the Global biannual state of ICT enabled AIS;
- Publish the bimonthly electronic bulletin on ICT use and ICM in ARD;
- Coordinate the publication of articles on ICT applications and success stories in ARD;
- Support and promote the development and adoption of common standards, rules, norms etc. for sharing and exchange of agricultural information;
- Oversee the functioning of the GLOBAL.RAIS Web Ring and the development of the Knowledge Network.

Similarly, the AARINENA-RAIS , APARIS and INFOTEC Steering Committees and the FARA-RAIS Task Force will:

- Oversee advocacy, collection and collation of status and indicator data on ICT enabled AIS at the sub-regional and regional levels;
- Conduct needs assessment for capacity development;
- Coordinate capacity development and provide the linkages with GFAR Task Forces for the GLOBAL.RAIS Web Ring and the GLOBAL.RAIS Knowledge Network.

In case of the sub-regional RAIS, Steering Committees and/or Task Forces will play a similar role as that of the Steering Committees/Task Forces at the Regional level and coordinate with their ROs.

4. Project Goal

The project's overall goal is to strengthen national, regional and global agricultural information systems to satisfy the needs of an emerging, more knowledge intensive agriculture that now needs information on a wider range of topics and beyond that available with local communities.

5. Purpose of the Project

The purpose of the project is to enable more equitable access to agricultural information globally for ARD stakeholders through improved ICM and more efficient use of ICT in National, Regional and Global agricultural information systems. The use of new ICT, especially the Internet, holds great potential to achieve this purpose. This project proposes to strengthen ICT enabled NAIS, which form the basic blocks for sharing and exchanging agricultural information regionally and globally, by:

1. Creating awareness for advocacy for appropriate policies, strategies and investment for ICT enabled NAIS among NARS leaders;
2. Developing capacity for managing ICT enabled information systems and ICM in ICT managers at national and regional levels;

3. Enabling integration of agricultural information at national, regional and global levels and its access through multiple web based gateways.

6. Project Objectives

The project will attain this goal through accomplishing the following objectives:

1. **Strengthening the advocacy role of NARS leaders** so that they can contribute to:
 - a) Articulation and implementation of appropriate policies and strategies for development and application of ICT enabled information systems for ARD at national, regional and global levels;
 - b) Improving resource allocation and attracting investment in the application of ICT and improved ICM in NAIS;
 - c) Providing leadership to development of better information and knowledge systems for agricultural research and development.
2. **Capacity development of ICT specialists and those associated with ICM in NAIS and RAIS** towards:
 - a) Development and Management of more demand responsive NAIS and RAIS. This will include further developing the conceptual basis of NAIS and development of a tool kit for NAIS management through Inter-regional collaboration;
 - b) Development and Management of Distributed Information Systems and Databases;
 - c) Development and management of Projects, Institutions, Experts and Research outputs databases as also AGRIS System components that form the core of NAIS information content.
3. **Integration of ARD Information Systems** through:
 - a) GLOBAL.RAIS Web Ring which will have multiple gateways through RAIS and NAIS websites to global agricultural information and will include development of a multi-host search engine as a tool. The Web Ring will also connect RAIS, NAIS and other agricultural information systems such as AGRIS into a distributed yet integrated global information system through an open access model;
 - b) Knowledge Network which will be centered on a Community of Practice and Learning (CoP/L) related to ICT application and ICM in AIS for ICT and ICM practioners of the NAIS and RAIS. It will also be supported by other global initiatives such as iMARK and the FAO Clearinghouse.
4. Instituting appropriate **Governance Structures** for ICT enabled Information Systems at GFAR and RAIS levels which will include:
 - a) GFAR ICT/ICM Task Force which will technically support GFAR Secretariat in synthesis of the synthesis of the biannual global status of ICT enabled AIS, adoption and promotion of standards, guidelines, norms, ontologies etc. in collaboration with the FAO Clearinghouse and in assessing capacity development needs of NAIS, RAIS and EGFAR;
 - b) GFAR ICT/ICM Cell which will manage and coordinate with the regional organizations the activities of this project;

- c) Strengthening of RAIS Steering Committees and/or Task Forces.

7. Project Outputs with expected outcomes

There will be four main outputs from the project:

1. Improved Capacity in NARS, ROs/SROs², GFAR leaders for advocating development of ICT enabled AIS at their respective levels.

Outcome 1:

This will enable development and implementation of appropriate policies and strategies for ICT enabled AIS at national, regional and global levels and attract greater resources and investment for ICT enabled NAIS and RAIS.

2. Capacity Development of ICT managers and staff of NAIS, Sub-RAIS (S-RAIS) and RAIS in further developing NAIS and RAIS.

Outcome 2:

This will enable NAIS and RAIS ICT Managers to improve management of NAIS, integration of information systems at NAIS and RAIS levels and develop and manage the core distributed databases of a NAIS.

3. Integration of and equitable access to National, Regional and Global Agricultural Information through GLOBAL.RAIS Web Ring.

Outcome 3:

This will enable a more equitable, global access to agricultural information needed by stakeholders to ARD worldwide. It will bring greater economy, efficiency and effectiveness to global and regional ARD activities and better capacity among countries and agricultural communities to participate in global agricultural markets through access to better technologies and market information.

4. New Governance structures for ICT enabled information systems at regional and global levels.

Outcome 4:

This will, through setting up of task forces that support advocacy for ICT enabled AIS, development of standards, guidelines, norms, etc. and capacity development, enable more seamless integration, sharing and exchange of agricultural information globally.

These outputs are further detailed in the Logical Framework of the Project (Appendix I).

8. Project Duration, Activities and Schedule

8.1. Duration

² Sub-Regional Organizations

The following activities, with detailed duration and schedule (Appendix II) will be conducted in 3 years to attain the project outputs.

8.2. Activities

8.2.1. *Advocacy*

a) Generating Reports on ICT enabled AIS at National and Regional Level

Reports on the status of ICT enabled AIS, including AGRIS, and a needs assessment to further enable these information systems at each country level will be commissioned with appropriate terms of reference to national consultants by task forces constituting of representative ARD, ICT and ICM experts from the NARS of each of the ROs/SROs. The reports will also include, where possible, impact assessment of ICT enabled information systems. The Task Forces will also synthesize a regional status report on ICT enabled AIS and indicate the needs to further enable equitable access through sharing and exchange of agricultural information by ARD stakeholders within the region. These regional reports will be elaborated in technical collaboration with the IT Officers of the FAO Regional Offices. They will be published at the end of the first year of the project and then biannually so that within the duration of the project the first benchmark report and a report on progress made in two years is available by the end of the project. After the completion of the project, the ROs and GFAR will continue this activity from its own resources. These country and regional reports will contribute to strengthening the advocacy role of NARS leaders and building a strategic vision at national, regional and global levels.

b) Sensitization and Awareness of NARS Leaders on Advocacy Issues

Sensitization and awareness building of NARS leaders on policy, strategy and issues related to attracting investment in ICT enabled AIS, including AGRIS, as also leading development of AIS will be conducted through Seminars, Workshops held during general body meetings of the Regional and Sub-regional organizations and Status/White Papers circulated to NARS leaders. The focus will be on enabling equitable access to agricultural information through application of appropriate ICTs and ICM in NAIS and in sharing and exchange of information through RAIS, the Knowledge Network and GLOBAL.RAIS Web ring. Already existing tools, such as IMARK, will be used in addition to other software during these workshops.

c) Bimonthly electronic bulletin through EGFAR Website

This bulletin, containing information about ICT applications, tools and services and ICM in AIS, will be published bi-monthly by GFAR from its EGFAR website and circulated through e-mail in html and pdf formats to all ARD stakeholders, NARS leaders, ICT Managers and those associated with ICM of NAIS and RAIS, This bulletin will form a core communication channel for all involved in development and management of ICT enabled AIS.

d) Publication of Featured Article in Reputed Journal

Articles that contribute to further development of ICT applications in agricultural information management and information and communication management through ICT enabled AIS will be commissioned by GFAR and submitted on its behalf to reputed peer reviewed journals. These articles will provide impetus to the development of agricultural informatics as a discipline, and will illustrate the concept of impact of ICT use in ARD.

e) Development of African Federation for Information and Communication Technology in Agriculture

The International Federation for Information Technology in Agriculture (INFITA) and its regional chapters the European Federation for Information Technology in Agriculture (EFITA) and the Asian Federation for Information Technology in Agriculture (AFITA) have provided strong support for professionals to share experiences in the advancement of ICT use in agriculture and in enhancing ICT-enabled information Systems. The World Congress of Computers in Agriculture (WCCA) has similarly played a role in North, Central and South America. The African continent lacks African Federation for Information Technology in Agriculture. GFAR will promote and support, through FARA, the formation of the African Federation and National members.

8.2.2. *Capacity Development*

a) Face-to-Face Workshops on:

- i) NAIS Development and Management;
- ii) Projects, Institutions, Experts and Research Outputs Databases;
- iii) Distributed Database Management.

These 3 sets of 7 face-to-face workshops each will be conducted by ROs/SROs during the 3 year duration of the project. The purpose of the workshops will be to provide two ICT specialists from each member country of the regional and sub-regional organization with the necessary skills in each of the topical area of the workshops. They will be facilitated by consultants and experts available at the regional level and with collaborating Institutions such as the FAO, CGIAR, CIRAD, CTA etc. Each Workshop will include a pre-workshop electronic consultation, a workshop manual including background material on the subject and be followed by a post workshop follow up. These workshops will be attended by two ICT managers from each member country of the regional and sub-regional organization.

The task of further developing the conceptual basis of the NAIS and its management will be shared by AARINENA, EARD-InfoSys+, as a form of inter-regional cooperation among regional organizations and FAO who have already developed capacities for this activity. This collaborative platform, supported by the project, will also develop a toolkit for NAIS management.

Along the same line, the development of already existing initiatives will be supported by the project, such as the completion of the various modules of IMARK, and its use by the various GFAR stakeholders.

b) Open and Distance on:

- i) NAIS Development and Management;
- ii) Projects, Institutions, Experts and Research Outputs Database Management;
- iii) Distributed Database Management.

These courses in the open and distance mode will supplement the face to face capacity development activities of each regional organization. They will be open to all involved in providing agricultural information at the NAIS and RAIS. These courses will increase the exposure for training to a larger number of ICT managers and those involved in ICM of AIS in NARS and other ARD Institutions at the national level. Each Course will be packaged with

course material developed for the face-to-face workshops and also available in iMARK tool kits developed by FAO. Along with the Knowledge Network, the use of a three pronged capacity development approach should enable rapid generation of the needed human skills in the NARS for development and management of NAIS.

8.2.3. Integration of Agricultural Information Systems

a) Establishment of Knowledge Network and Community of Practice

The Knowledge Network and Community of Practice will further supplement the capacity development efforts of the project. This knowledge Network will share information, experience and knowledge electronically through iNARS (www.dgroups.org/groups/iNARS) and periodically through face-to-face means related to management of ICT enabled AIS at National, Regional and Global levels.

The Project will also be supported by the initiative from other stakeholders as FAO, the CGIAR, DFID and the SIST Project of MAE, France to promote standard for more “coherence” in AIS. The definition of common vocabularies and data exchange standards (technically and semantically) will facilitate enormously the establishment of services that exploit existing information repositories and systems. Thus, GFAR through this project, will be an active partner in the development and implementation of FAO clearinghouse for these standards and methodologies.

b) Setting up of GLOBAL.RAIS Web Ring

The GLOBAL.RAIS Web Ring is primarily a web based tool to integrate access to agricultural information available at national, regional and global levels. The tool will consist of a multi-host search engine such as that of *Shared* and Node-XML which is in use by EARD-InfoSys+. The Web Ring will allow access to data managed through a set of distributed databases and global agricultural information through multiple access points of the NAIS, RAIS gateways and EGFAR as also websites of collaborating organizations such as the FAO and the CGIAR. The Web Ring will also support and promote adoption of common standards, norms, guidelines and ontology to enable seamless access to information on NAIS, RAIS and EGFAR websites. GFAR will therefore contribute to the development of the FAO Clearinghouse.

The development of the Web Ring will be a collaborative effort among the NAIS, RAIS, GFAR. This Web Ring is consistent with the new AGRIS Vision & Strategy. Thus, FAO will play a key role for the development of all issues related to standards, norms and data structure definition, along with other partners such as CGIAR, CTA, CIRAD and Regional Organizations. For example, AARINENA, FAO and EARD-InfoSys+ have also indicated their desire to develop a common database tool for the Projects and Institutions Database.

The development of GLOBAL.RAIS Web Ring will be lead by the GFAR ICT/ICM Task Force that will be formally in place by the end of the first quarter of year 1. The three major steps in the development of GLOBAL.RAIS Web Ring are: i) Database development³, ii) Gateway development and iii) Search Engine development.

i) Database Development

³ The different modules of the database have already been defined during the 5 regional workshop and the inter-regional one.

To achieve database development, the GFAR ICT/ICM Task Force will conduct a survey on current situation in different countries of the region/sub-region and produce a document that will answer three basic questions on i) how to collect information; ii) means for validating the information collected; iii) how to manage the system.

Once this document is ready and circulated (by end of second quarter of year 1), each RO/SRO, technically assisted by the GFAR ICT/ICM Task Force, will restructure or build its own database, following common recommendations contained in the document and help the NAIS in developing a similar structure. A parallel process at that stage will be the appointment of National Information Nodal Points (NINPs) in as many countries as possible to be completed by the end of the third quarter of year 2, so to start building a solid network at the national level and be in charge of validation of database content. The database structure should be in place in by the end of the first quarter of year 2⁴.

ii) Gateway development

Gateway development in the building up of the GLOBAL.RAIS Web Ring, will start with the production, by the GFAR ICT/ICM Task Force, of a second document concerning the establishment of gateway function of the Web Ring. This document should be ready and circulated by the end of the second quarter of year 2. This document will serve as guidelines for the different regional/sub-regional RAIS in the development of the gateway function of their website, so that by the end of year 2 the GLOBAL.RAIS Web Ring is in place.

iii) Search Engine Development

The third document the GFAR ICT/ICM Task Force will produce is guidelines for indexing information hosted by RAIS/NAIS, in order make this information searchable within the GLOBAL.RAIS Web Ring and start to building the Search Engine of the system. This document will answer to two basic questions i) What to index; and ii) How to index it, and should be ready.

This document will be circulated by the end of the first quarter of year 3.

By following the above mentioned document as a guideline, all RAIS/NAIS should be able to index their existing information so that it can be accessed in an integrated way through the multiple gateways and use the same method for all future indexing. By the end of the second quarter of year 3, at least 25% of existing information at RAIS/NAIS level will be indexed following the guidelines.

Once the data are ready to be searched by the system, the Search Engine can be put in place by the end of the third quarter of year 3.

8.2.4. Governance of Global Agricultural Information Systems

a) GFAR ICT/ICM Task Force

The GFAR ICT/ICM Task Force will technically support the GFAR Secretariat in project implementation. It will also synthesize the biannual global status report on ICT enabled AIS. The task force will play a prominent supporting role in advocacy to enable equitable access to global

⁴ *Being in place* means that every region/sub-region must have the database structure, following the guidelines expressed in the document. Development in the different countries depends on technical capacities available in these countries, so the recommendation is to have the database in place at least in a sufficient number of countries of each region.

agricultural information. The Task Force will also support and promote the development and adoption of standards, norms, guidelines and ontology related to agricultural information in collaboration with the FAO Clearinghouse. Consistently with the position of FAO as a GFAR facilitating Agency, it is therefore suggested that FAO WAICENT would be recommended to be one Member of this Task Force.

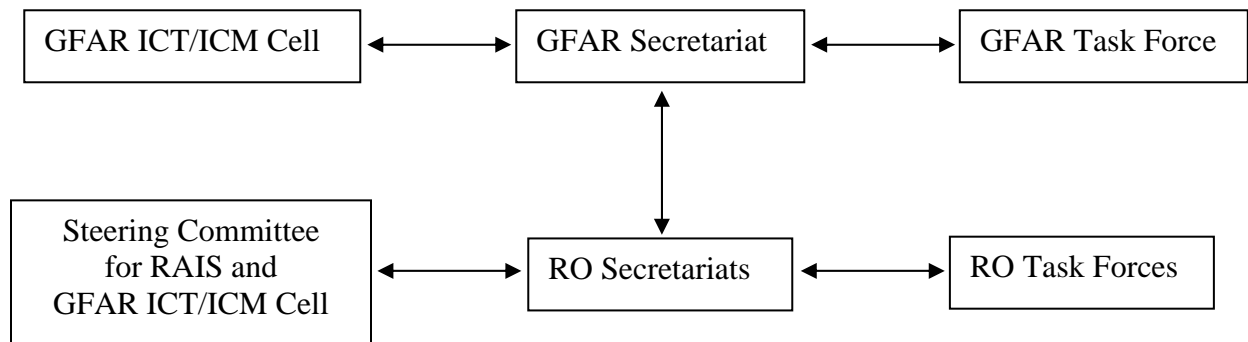
b) Strengthening of RO/SRO RAIS Steering Committees

The RAIS and S-RAIS of regional and sub-regional organizations are organizationally weak. Except INFOTEC and APAARI, which has only allocation of half of the time of the assistant executive secretary to APARIS, there is no full time allocation of staff to any RAIS. As evidenced by INFOTEC and APARIS allocation of full time staff is critical to the function of the RAIS and S-RAIS, which except ASARECA-RAIN, also have the same issues as of the RAIS. The staff of RAIS will oversee the various project activities proposed in the project at the RAIS and S-RAIS levels.

c) GFAR ICT/ICM Cell

This cell will be a part of the GFAR Secretariat to manage the regular operational and management aspects of this project.

Figure 1: Governance structure



8.3. Schedule

See appendix II

9. Target Institutions and Beneficiaries

a) NARS and ARD Stakeholders including:

- Policy Makers;
- ARD Managers;
- Agricultural Scientists, Teachers and Students;
- Farmer Communities, Organizations and Individual Farmers;
- Extension Agents;
- Market Intermediaries including Agricultural Input Suppliers;
- Non-Government and Civil Service Organizations;

- Private Sector;
- General Public.

b) ROs/SROs including AARINEA, APAARI, CACAARI, FARA, ASARECA, CORAF, SADC and FORAGRO and their members and stakeholders.

10. Project Implementation and Methodology

The project is a collaborative activity between GFAR, ROs, SROs and their stakeholders. The overall responsibility of project implementation and execution will be of GFAR Secretariat. GFAR will establish an ICT/ICM Cell at its Secretariat for this Project.

The GFAR Secretariat will link with the ROs and their Secretariats for executing the project at the regional level. In case of Sub-Saharan Africa, FARA will coordinate the activities of the project at the Sub-Regional level.

The project implementation will be supported technically by the GFAR ICT/ICM Task Force. This task force will link with regional task forces for the technical support of the project at regional levels.

Project funding will be allocated on an yearly basis following standard GFAR management and financial procedures.

In case of collaborative activities across ROs and with other partner organizations, the RO Secretariats will be encouraged to share responsibilities and costs through mutual agreements. ROs will also be encouraged to seek further funds for their activities using this project's funding as core financial support.

Considerable resources will be provided at no cost to the project by FAO, through the AGRIS secretariat and the Clearinghouse and iMARK teams at FAO Headquarters, and the information management specialists located in FAO's five Regional Offices, as well as the resources, tools, publications and other outputs related to AGRIS and iMARK.

11. Project Monitoring and Evaluation

The GFAR Steering Committee will establish appropriate procedures and a committee for independent project monitoring, midterm review and final evaluation of the project at completion.

The GFAR ICT/ICM Cell will be a part of the GFAR Secretariat and report to Executive Secretary, GFAR. The officer in charge of the GFAR ICT/ICM Cell will be the ex-officio Secretary to GFAR ICT/ICM Task Force. The GFAR ICT/ICM Task Force will review the technical progress of the project every 6 months and report to the GFAR Steering Committee its progress annually.

The project execution at the ROs will similarly be monitored by the RO Secretariat. The RAIS Steering Committee will oversee the project execution at the regional level. The ROs will establish an ICT/ICM Cell for managing the Project and its RAIS. The RO Secretary or his/her representative will be the ex-officio secretary of the Regional ICT/ICM Task Force who will review the technical progress of the project at the regional level every 6 months and report to the RO Steering Committee annually. The ROs Executive Secretary, who will have administrative and financial responsibility of the project, will report the progress of the project and the Regional ICT/ICM Task Force reports to the GFAR Secretariat.

12. Competencies and Experience

The GLOBAL.RAIS Consultations have revealed that there are significant relevant existing work in progress and considerable capabilities available at individual, NARS and among collaborating and partner organizations. Within these partners FAO plays a key role and this project aims at contributing to implement the New AGRIS Strategy & Vision. Indeed, progress towards development of the conceptual basis of NAIS in relation to the AGRIS concept and the IMARK resource kit for NAIS management is already about to be made by AARINENA, EIARD-Infosys+ and FAO. CGIAR, EARD-InfoSys+ are also expected to contribute to the planned activities in this project.

However, these capabilities are spread across the countries and regions⁵. These capabilities have to be pooled through cooperation. Proposals towards this cooperation in developing the conceptual basis of NAIS and toolkits for NAIS management has already been made by AARINENA and EARD-InfoSys+. One of the major achievements of this project will be to foster this cooperation within and across the region and collaborate in furthering the capacity development of AIS globally.

13. Collaborating Institutes

- GFAR;
- Regional and Sub-Regional Organizations;
- NARS and ARD Institutions;
- FAO;
- EARD-InfoSys+;
- CGIAR and its 15 Centers;
- Commonwealth of Learning;
- CTA;
- CIRAD;
- ZADI⁶;
- NWO⁷.

14. Financial Costs

See Appendix III.

⁵ In Asia, Japan, Taiwan, South Korea, China, India, Malaysia, Philippines, Indonesia and Thailand have significant ICT and ICM capabilities to contribute through cooperation to the planned activities. Similarly, such capabilities exist in Latin America and in Egypt and Morocco in the West Asia and North Africa Region. Kenya, Tanzania, Zambia, Ghana, Senegal and South Africa also have significant capacities in ICT/ICM.

⁶ Zentrale für Agrardokumentation und Information

⁷ Nederlandse Organisatie voor Wetenschappelijk Onderzoek

Logical Framework of the Project

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
GOAL			
<p>Strengthen national, regional and global agricultural information systems to satisfy the needs of an emerging, more knowledge intensive agriculture that now needs information on a wider range of topics and beyond that available with local communities.</p>	<ul style="list-style-type: none"> • ICT enabled AIS at National level; • Sub-regional and regional AIS; • GLOBAL.RAIS Web Ring. 	<ul style="list-style-type: none"> • Increased numbers of ICT enabled AIS at National level; • Strengthened, more cohesive sub-regional and regional AIS with information bases and links to NAIS and GLOBAL.RAIS Web Ring; • Number of distributed databases and increase in websites accessible through GLOBAL.RAIS Web Ring; • Increase in number of communities accessing information from NAIS, S-RAIS, RAIS and GLOBAL.RAIS Web Ring as measured through hits to the various gateways. 	<p>Greater equity in access to, sharing and exchange of agricultural and related information will benefit agriculture at national, sub-regional, regional and global levels enabling greater participation of farmers and other agricultural commodity marketing chain members in agricultural markets, reduction in poverty, food and nutritional security, biosafety and improved management of natural resources in a sustainable manner.</p>
PURPOSE			
<p>To enable more equitable access to agricultural information globally for ARD stakeholders through improved ICM and more efficient use of ICT in National, Regional and Global agricultural information systems.</p>	<ul style="list-style-type: none"> • Agricultural communities accessing national, regionally and global available more integrated, relevant, useful and credible information. 	<ul style="list-style-type: none"> • Increase in number of ICT enabled agricultural information systems available through NAIS, S.RAIS, RAIS and GLOBAL.RAIS Web Ring; • Number of agricultural communities accessing ICT enabled information systems. 	<p>Farmers and members of the entire market chain of agricultural commodities now need information beyond their local communities to participate in global markets. Supporting NAIS, RAIS and the GLOBAL.RAIS Web Ring will contribute to this.</p>

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
OUTPUTS			
<p>1. Improved Capacity in NARS leaders for advocating and articulating development of ICT enabled AIS at their respective levels.</p>	<ul style="list-style-type: none"> Functional Task Forces at RO/SRO level that will coordinate benchmarking and regular update of ICT enabled AIS at NARS, RO/SRO and Global levels. 	<ul style="list-style-type: none"> 5 Task Forces; At least 100 National, 5 Regional and 1 Global Status Reports with Needs Assessment for Capacity Development. 	<p>Task Forces established and made operational by SROs/ROs.</p>
	<ul style="list-style-type: none"> Sensitization and awareness of NARS, RO/SRO and GFAR Leaders/Stakeholders on issues related to development of ICT enabled AIS and its management at NARS, RO/SRO and Global Level. 	<ul style="list-style-type: none"> 100 Number of NARS/RO/SRO and GFAR leaders sensitized and made aware of issues for advocating ICT enabled AIS. 	<p>NARS Leaders involve in advocacy role.</p>
	<ul style="list-style-type: none"> Electronic bulletins on ICT use and ICM lessons learnt in agricultural informatics through EGFAR website and email, in PDF format. 	<ul style="list-style-type: none"> Bi-Monthly Electronic Bulletins from January 2005 onwards. 	<p>Electronic Bulletins general relevant and useful ICT use and ICM in AIS information.</p>
	<ul style="list-style-type: none"> Articles on ICT, ICM and in-depth success stories of ICT enabled/ICM in ARD in reputed publications. Emphasis of the articles will be on impact assessment of ICT enabled agricultural information systems. 	<ul style="list-style-type: none"> Featured articles from middle of Year 1 onwards. 	<p>Useful, peer-reviewed publishable articles are generated through commission and contracts.</p>
	<ul style="list-style-type: none"> Formal African Forum on Information Technology in Agriculture similar to EFITA in Europe and AFITA in Asia. 	<ul style="list-style-type: none"> African Forum on Information and Communication Technology in Agriculture (AFICTA) established and function with at least 1 Africa level; Convention by Year 3. 	<p>African ICT/ICM Specialists take up the activity of developing AFICTA from National level.</p>

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
<p>2. Capacity Developed of ICT managers and staff of NAIS, S-RAIS and RAIS in further developing NAIS and RAIS.</p>	<ul style="list-style-type: none"> Face-to-Face Workshops and ODL⁸ with courseware/toolkits, of ICM managers in ICT management and ICM for development and management of NAIS, S-RAIS RAIS, at a distributed level i.e. NAIS, RAIS and S-RAIS. 	<ul style="list-style-type: none"> 7 Face-to-Face (1 in each region and sub-region) Workshops conducted in Year 1; 7 ODL (1 in each region and sub-region) Course offered in each region with Courseware/Toolkits; At least 140 NAIS and RAIS ICT/ICM managers trained ODL Courses offered managers trained by end of Year 1. 	<p>Workshops are found useful for capacity development for NAIS, RAIS Management.</p> <p>ODL courses are found useful with adequate participation</p>
	<ul style="list-style-type: none"> Toolkit for NAIS Management developed through Interregional collaborative platform. 	<ul style="list-style-type: none"> Toolkit and Report on NAIS Concept. 	
	<ul style="list-style-type: none"> Face to Face Workshops and ODL courses, for ICT Systems Managers to develop and manage Projects, Institutions and Experts and NAIS-AGRIS Information bases. 	<ul style="list-style-type: none"> 7 Face-to-Face Workshops (1 in each region and sub-region) conducted in 2006; 7 ODL Courses (1 in each region and sub-region) offered with Courseware/Toolkits; 140 NAIS and RAIS ICT/ICM systems managers trained by end of Year 2. 	<p>Workshops are found useful for capacity development in Projects, Institutions and Experts Information Base Management.</p> <p>ODL courses are found useful with adequate participation for Projects, Institutions and Experts Information Base Management.</p>
	<ul style="list-style-type: none"> Face to Face Workshops and ODL Courses, for ICT Systems Managers to develop and manage information systems and databases at a distributed level i.e. NAIS, RAIS and S.RAIS, Market Information and Outreach Systems. 	<ul style="list-style-type: none"> 7 Face-to-Face Workshops (1 in each region and sub-region) conducted in Year 3; 7 ODL Courses (1 in each region and sub-region) offered with Courseware/Toolkits; 140 NAIS and RAIS ICT/ICM systems managers trained by end of Year 3. 	<p>Workshops are found useful for capacity development for development and management of distributed information systems.</p> <p>ODL courses are found useful with adequate participation for development and management of distributed information systems.</p>
<p>3. Knowledge Network and related GLOBAL.RAIS Web Ring</p>	<ul style="list-style-type: none"> Knowledge Network. 	<ul style="list-style-type: none"> No. of Participants in Knowledge Network. 	<p>ICT Managers and specialists participate in CoP/L.</p>

⁸ Open and Distance Learning

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
	<ul style="list-style-type: none"> • Web Ring 	<ul style="list-style-type: none"> • Established Web Ring with gateways and search engine. 	Web Ring can be established with RAIS and NAIS collaboration.
<p>4. Supporting Governance Structures at GFAR Level</p>	<ul style="list-style-type: none"> • GFAR level Task Force; • Project Coordination and Monitoring Cell at GFAR Secretariat. 	<ul style="list-style-type: none"> • GFAR Level Task Force Meeting Minutes (half-yearly) and Reports (annually); • Biannual Regional Global Status Report on ICT enabled Agricultural Information Systems at NAIS, RAIS, SR.RAIS and Global level; • Published Request for comments, guidelines, supporting development and dissemination of standards, ontologies, norms etc by other organizations such as FAO etc related to sharing and exchange of agricultural and related information. 	Task Force can be established at GFAR and made functional.
ACTIVITIES			
<p>1.1 Generating reports on Status of ICT enabled agricultural information systems at NAIS, S-.RAIS and RAIS with needs assessment of actors, and development of a strategic vision.</p>			
<p>1.2 Conducting sensitization and awareness workshops and seminars.</p>			
<p>1.3 Publishing of bimonthly electronic bulletin on ICT use and ICM lessons learned.</p>			
<p>1.4 Publishing articles in reputed journals on ICT use impact.</p>			
<p>1.5 Supporting development of African Federation for Information and Communication Technology in Agriculture (AFICTA).</p>			
<p>2.1 Conducting Workshops on</p>			

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
Development and Management of NAIS and use of ICT tools for NAIS with distribution of tool kit for ICT and ICM Managers.			
2.2 Development of Conceptual Basis of NAIS and Toolkit for NAIS Management through inter-regional cooperation between AARINENA and EARD-InfoSys+.			
2.3 Conducting Workshops on Development and Management of Institutions, Projects and Experts Information Bases for information systems managers at national and regional levels.			
2.4 Conducting Workshops on Development and Management of Market and Outreach information Systems for NAIS/RAIS Systems Managers.			
2.5 Conducting Open, Distance and flexible learning courses on Development and Management of NAIS.			
2.6 Conducting Open, Distance and flexible learning courses on development and management of Projects, Institutions and Experts Information Bases.			
2.7 Conducting Open, Distance and flexible learning courses on development and management of Market and Outreach Information Systems.			
2.8 Setting up of CoP/L			
3.1 Setting up of GLOBAL.RAIS knowledge network with strengthening of iNARS and developing of CoP/L for ICT and System Managers of NAIS and RAIS.			
3.2 Setting up of GLOBAL.RAIS Web			

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Assumptions
Ring with multiple gateways at RAIS and NAIS level and multi-host database search engine.			
4.1 Operational GFAR ICT/ICM Task Force.			
4.2 Strengthening of RO/SRO RAIS Steering Committees.			
4.3. Setting up of GFAR ICT/ICM Cell for GLOBAL.RAIS project.			

Activities and Milestones of the Project

Activity	Year 1				Year 2				Year 3				Milestones details
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<i>Advocacy</i>													
Generating Reports on ICT enabled AIS at National and Regional Level			1	2							1	2	1 National Status Reports 2 Regional Status Reports
Sensitization and Awareness of NARS Leaders on Advocacy Issues				X								X	Awareness Workshops
Bimonthly electronic bulletin through EGFAR Website	X	X	X	X	X	X	X	X	X	X	X	X	Bimonthly Bulletins
Publication of Quarterly Featured Article in Reputed Journal				X				X				X	Reports on Articles Commissioned and Published
Development of African Federation for Information and Communication Technology in Agriculture								1				2	1 National Associations Formed 2 AfFICTA International Convention
<i>Capacity Development</i>													
Face-to-Face Workshops		X				X			X				Proceedings of Workshop
Development of NAIS Management Toolkit by AARINENA and EARD-InfoSys+ and FAO						X							NAIS Toolkit
Open and Distance Learning Courses			X				X					X	Report on ODL Courses
<i>Integration of Agricultural Information Systems</i>													
Setting up of GLOBAL.RAIS Knowledge Network and Community of Practice			X				X					X	Report on Knowledge Network
Setting up of GLOBAL.RAIS Web Ring		1				2					3		1 Report of Survey of Database Structures 2 Report of Consultation on Gateway Function with Guidelines 3 Report on Consultation on Indexing with Guidelines 4 Operation of Search Engine in GLOBAL.RAIS Web ring
<i>Governance of Global Agricultural Information Systems</i>													
GFAR ICT/ICM Task Force	1		2			3						2	1 Establishment of Task Force 2 Annual Reports of Task Force 3 Reports on Global State of ICT enabled ARD Information Systems
Strengthening of RO/SRO RAIS Steering Committees	X		X				X					X	
GFAR ICT/ICM Cell			X				X					X	RO Steering Committee Meeting Minutes and Reports



Progression of the activity

Milestone/Outputs (See Details in last column)

Budget of the Project

	Activity	Activity By	2005	2006	2007	2008	Total
A.	Advocacy						
1	Operational Task Force at RO/SRO level to commission, coordinate and publish reports on ICT enabled AIS at National and Regional Level						
		AARINENA	30000.00	0.00	30000.00	0.00	60000.00
		APAARI	30000.00	0.00	30000.00	0.00	60000.00
		CACAARI	30000.00	0.00	30000.00	0.00	60000.00
		FARA	20000.00	0.00	20000.00	0.00	40000.00
		ASARECA	15000.00	0.00	15000.00	0.00	30000.00
		CORAF	15000.00	0.00	15000.00	0.00	30000.00
		SADC	15000.00	0.00	15000.00	0.00	30000.00
		FORAGRO	30000.00	0.00	30000.00	0.00	60000.00
	Total A1		185000.00	0.00	185000.00	0.00	370000.00
2	Sensitization and Awareness of NARS Leaders on Advocacy Issues						
		AARINENA	5000.00	5000.00	5000.00	0.00	15000.00
		APAARI	5000.00	5000.00	5000.00	0.00	15000.00
		CACAARI	5000.00	5000.00	5000.00	0.00	15000.00
		FARA	5000.00	5000.00	5000.00	0.00	15000.00
		ASARECA	3000.00	3000.00	3000.00	0.00	9000.00
		CORAF	3000.00	3000.00	3000.00	0.00	9000.00
		SADC	3000.00	3000.00	3000.00	0.00	9000.00
		FORAGRO	5000.00	5000.00	5000.00	0.00	15000.00
		GFAR	5000.00	5000.00	5000.00	0.00	15000.00
	Total A2		39000.00	39000.00	39000.00	0.00	117000.00
3	Bimonthly electronic bulletin through EGFAR Website	GFAR	6000.00	6000.00	6000.00	6000.00	24000.00
4	Publication of Quarterly Featured Article in Reputed Journal	GFAR	4000.00	4000.00	4000.00	4000.00	16000.00

5	Development of African Federation for Information and Communication Technology in Agriculture	FARA	3000.00	6000.00	30000.00	3000.00	42000.00
	Total A		237000.00	55000.00	264000.00	13000.00	569000.00
B.	Capacity Development						
1	Face-to-Face Workshop on NAIS Development and Management						
		AARINENA	30000.00	0.00	0.00	0.00	30000.00
		APAARI	30000.00	0.00	0.00	0.00	30000.00
		CACAARI	30000.00	0.00	0.00	0.00	30000.00
		FARA		0.00	0.00	0.00	0.00
		ASARECA	15000.00	0.00	0.00	0.00	15000.00
		CORAF	15000.00	0.00	0.00	0.00	15000.00
		SADC	15000.00	0.00	0.00	0.00	15000.00
		FORAGRO	30000.00	0.00	0.00	0.00	30000.00
	Total B1		165000.00	0.00	0.00	0.00	165000.00
2	ODL Course on NAIS Development and Management						
		AARINENA	7000.00	0.00	0.00	0.00	7000.00
		APAARI	7000.00	0.00	0.00	0.00	7000.00
		CACAARI	7000.00	0.00	0.00	0.00	7000.00
		ASARECA	5000.00	0.00	0.00	0.00	5000.00
		CORAF	5000.00	0.00	0.00	0.00	5000.00
		SADC	5000.00	0.00	0.00	0.00	5000.00
		FORAGRO	7000.00	0.00	0.00	0.00	7000.00
	Total B2		43000.00	0.00	0.00	0.00	43000.00
3	Face-to-Face Workshop on Projects, Institutions, Experts and NAIS-AGRIS Databases						
		AARINENA	0.00	30000.00	0.00	0.00	30000.00
		APAARI	0.00	30000.00	0.00	0.00	30000.00
		CACAARI	0.00	30000.00	0.00	0.00	30000.00
		ASARECA	0.00	15000.00	0.00	0.00	15000.00
		CORAF	0.00	15000.00	0.00	0.00	15000.00
		SADC	0.00	15000.00	0.00	0.00	15000.00

		FORAGRO	0.00	30000.00	0.00	0.00	30000.00
	Total B3		0.00	165000.00	0.00	0.00	165000.00
4	ODL Course on Projects, Institutions, Experts and NAIS-AGRI Database Management						
		AARINENA	0.00	7000.00	0.00	0.00	7000.00
		APAARI	0.00	7000.00	0.00	0.00	7000.00
		CACAARI	0.00	7000.00	0.00	0.00	7000.00
		ASARECA	0.00	5000.00	0.00	0.00	5000.00
		CORAF	0.00	5000.00	0.00	0.00	5000.00
		SADC	0.00	5000.00	0.00	0.00	5000.00
		FORAGRO	0.00	7000.00	0.00	0.00	7000.00
	Total B4		0.00	43000.00	0.00	0.00	43000.00
5	Face-to-Face Workshop on Distributed Database Management						
		AARINENA	0.00	0.00	30000.00	0.00	30000.00
		APAARI	0.00	0.00	30000.00	0.00	30000.00
		CACAARI	0.00	0.00	30000.00	0.00	30000.00
		ASARECA	0.00	0.00	15000.00	0.00	15000.00
		CORAF	0.00	0.00	15000.00	0.00	15000.00
		SADC	0.00	0.00	15000.00	0.00	15000.00
		FORAGRO	0.00	0.00	30000.00	0.00	30000.00
	Total B5		0.00	0.00	165000.00	0.00	165000.00
6	ODL Course on Distributed Database Management						
		AARINENA	0.00	0.00	7000.00	0.00	7000.00
		APAARI	0.00	0.00	7000.00	0.00	7000.00
		CACAARI	0.00	0.00	7000.00	0.00	7000.00
		ASARECA	0.00	0.00	5000.00	0.00	5000.00
		CORAF	0.00	0.00	5000.00	0.00	5000.00
		SADC	0.00	0.00	5000.00	0.00	5000.00
		FORAGRO	0.00	0.00	7000.00	0.00	7000.00
	Total B6		0.00	0.00	43000.00	0.00	43000.00
	Total B		208000.00	208000.00	208000.00	0.00	624000.00

C.	Integration						
1	Setting up of Global.RAIS Knowledge Network and Community of Practice						
		GFAR	15000.00	15000.00	15000.00		45000.00
2	Setting up of EGFAR Webring						
		GFAR and ROs	100000.00	100000.00	100000.00	30000.00	330000.00
	Total C		115000.00	115000.00	115000.00	30000.00	375000.00
D.	Governance						
1	Operational GFAR ICT/ICM Task Force	GFAR	50000.00	50000.00	50000.00	15000.00	165000.00
2	Strengthening of RO/SRO Rais Steering Committees						
		AARINENA	20000.00	30000.00	30000.00	10000.00	90000.00
		APAARI	20000.00	30000.00	30000.00	10000.00	90000.00
		CACAARI	20000.00	30000.00	30000.00	10000.00	90000.00
		FARA	20000.00	30000.00	30000.00	10000.00	90000.00
		ASARECA	20000.00	30000.00	30000.00	10000.00	90000.00
		CORAF	20000.00	30000.00	30000.00	10000.00	90000.00
		SADC	20000.00	30000.00	30000.00	10000.00	90000.00
		FORAGRO	20000.00	30000.00	30000.00	10000.00	90000.00
	Total D2		160000.00	240000.00	240000.00	80000.00	720000.00
	Total D		210000.00	290000.00	290000.00	95000.00	885000.00
	Grand Total (A+B+C+D)		770000.00	668000.00	877000.00	138000.00	2453000.00

Budget Notes

1.1

A Commissioning of ICT Status Reports for Each Country

USD 1000 per country per report

RO/SRO	No. of Countries	Year 1	Year 2	Year 3	Total
APAARI	30	30000.00	0.00	30000.00	60000.00
AARINENA	33	33000.00	0.00	33000.00	66000.00
FARA (ASARECA)	10	10000.00	0.00	10000.00	20000.00
FARA (CORAF)	24	24000.00	0.00	24000.00	48000.00
FARA (SADC)	11	11000.00	0.00	11000.00	22000.00
Total (FARA)		45000.00	0.00	45000.00	90000.00
CAC	9	9000.00	0.00	9000.00	18000.00
FORAGRO	31	31000.00	0.00	31000.00	62000.00
Total	148	148000.00	0.00	148000.00	296000.00

B. Travel of Task Force Members (5 Members/Task Force)

2 Meetings annually @ USD 1000 per person

RO	Year 1	Year 2	Year 3	Total
APAARI	10000.00	10000.00	10000.00	30000.00
AARINENA	10000.00	10000.00	10000.00	30000.00
FARA	10000.00	10000.00	10000.00	30000.00
CAC	10000.00	10000.00	10000.00	30000.00
FORAGRO	10000.00	10000.00	10000.00	30000.00
Total	50000.00	50000.00	50000.00	150000.00

C. DSA of Task Force Member (5 Member / Task Force)

2 Meeting annually @ USD 180 per day; 3 days per meeting

RO	Year 1	Year 2	Year 3	Total
APAARI	5400.00	5400.00	5400.00	16200.00
AARINENA	5400.00	5400.00	5400.00	16200.00
FARA	5400.00	5400.00	5400.00	16200.00
CAC	5400.00	5400.00	5400.00	16200.00
FORAGRO	5400.00	5400.00	5400.00	16200.00

Total			27000.00	27000.00	27000.00	81000.00
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D. Miscellaneous Cost of Task Force Meetings

RO	Year 1	Year 2	Year 3	Total
APAARI	2000.00	2000.00	2000.00	6000.00
AARINENA	2000.00	2000.00	2000.00	6000.00
FARA	2000.00	2000.00	2000.00	6000.00
CAC	2000.00	2000.00	2000.00	6000.00
FORAGRO	2000.00	2000.00	2000.00	6000.00
Total	10000.00	10000.00	10000.00	30000.00

E. Honorarium and Publishing of Regional Synthesized Reports

RO	Year 1	Year 2	Year 3	Total
APAARI	5000.00	5000.00	5000.00	15000.00
AARINENA	5000.00	5000.00	5000.00	15000.00
FARA	5000.00	5000.00	5000.00	15000.00
CAC	5000.00	5000.00	5000.00	15000.00
FORAGRO	5000.00	5000.00	5000.00	15000.00
Total	25000.00	25000.00	25000.00	75000.00

F. Totals

RO	Year 1	Year 2	Year 3	Total
APAARI	52400.00	22400.00	52400.00	127200.00
AARINENA	55400.00	22400.00	55400.00	133200.00
FARA	67400.00	22400.00	67400.00	157200.00
CAC	31400.00	22400.00	31400.00	85200.00
FORAGRO	53400.00	22400.00	53400.00	129200.00
Total	260000.00	112000.00	260000.00	632000.00

1.2 Sensitization and Awareness of NARS Leaders on Advocacy Issues

Cost of Workshop and Seminars During RO Meetings

RO	Year 1	Year 2	Year 3	Total
APAARI	5000.00		5000.00	10000.00
AARINENA	5000.00		5000.00	10000.00
FARA	5000.00		5000.00	10000.00
CAC	5000.00		5000.00	10000.00

FORAGRO			5000.00		5000.00	10000.00
Total			25000.00	0.00	25000.00	50000.00
1.3 Bimonthly electronic bulletin through EGFAR Website						
<i>Costs for Layout, Editing etc @ USD 500 per issue; 6 issues per annum</i>						
RO			Year 1	Year 2	Year 3	Total
GFAR			6000.00	6000.00	6000.00	18000.00
Total			6000.00	6000.00	6000.00	18000.00
1.4 Publication of Quarterly Featured Article in Reputed Journal						
<i>Commissioned at USD 1500 per article; 4 articles per year</i>						
RO			Year 1	Year 2	Year 3	Total
GFAR			6000.00	6000.00	6000.00	18000.00
Total			6000.00	6000.00	6000.00	18000.00
1.5 Development of African Federation for Information and Communication Technology in Agriculture						
<i>A USD 1000 per country for National Associations</i>						
RO/SRO	No. of Countries		Year 1	Year 2	Year 3	Total
ASARECA	10		5000.00	5000.00	0.00	10000.00
CORAF	24		12000.00	12000.00	0.00	24000.00
SADC	11		5000.00	6000.00	0.00	11000.00
Total (FARA)			22000.00	23000.00	0.00	45000.00
<i>B Grant for Pan-Africa AfFICTA Convention</i>						
RO			Year 1	Year 2	Year 3	Total
AfFICTA			0.00	0.00	40000.00	40000.00
Total for 1.5			22000.00	23000.00	40000.00	85000.00
2.1 Face-to-Face Workshop on NAIS Development and Management						
<i>2 participants per Country; USD 1000 for travel for each participant; USD 500 for DSA per each participant USD 200 per participant Workshop Facilitation Costs</i>						
RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	102000.00	0.00	0.00	102000.00

AARINENA	33	66	112200.00	0.00	0.00	112200.00
ASARECA	10	20	34000.00	0.00	0.00	34000.00
CORAF	24	48	81600.00	0.00	0.00	81600.00
SADC	11	22	37400.00	0.00	0.00	37400.00
Total (FARA)	45	90	153000.00	0	0	153000.00
CACAARI	9	18	30600.00	0.00	0.00	30600.00
FORAGRO	31	62	105400.00	0.00	0.00	105400.00
Total	193		503200.00	0.00	0.00	503200.00

2.2 Development of NAIS Management Toolkit by AARINENA and EARD-InfoSys+ and FAO

Lumpsum Grant

RO	Year 1	Year 2	Year 3	Total
AARINENA/EARD-InfoSys+	30000.00	33000.00	0.00	63000.00

2.3 ODL Course on NAIS Development and Management

2 participants per Country; USD 200 Facilitation Cost per participant

RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	12000.00	0.00	0.00	12000.00
AARINENA	33	66	13200.00	0.00	0.00	13200.00
ASARECA	10	20	4000.00	0.00	0.00	4000.00
CORAF	24	48	9600.00	0.00	0.00	9600.00
SADC	11	22	4400.00	0.00	0.00	4400.00
Total (FARA)	45	90	18000.00	0	0	18000.00
CACAARI	9	18	3600.00	0.00	0.00	3600.00
FORAGRO	31	62	12400.00	0.00	0.00	12400.00
Total	193		59200.00	0.00	0.00	59200.00

2.4 Face-to-Face Workshop on Projects, Institutions, Experts and NAIS-AGRIS Databases

2 participants per Country; USD 1000 for travel for each participant; USD 500 for DSA per each participant

USD 200 per participant Workshop Facilitation Costs

RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	0.00	102000.00	0.00	102000.00
AARINENA	33	66	0.00	112200.00	0.00	112200.00
ASARECA	10	20	0.00	34000.00	0.00	34000.00

CORAF	24	48	0.00	81600.00	0.00	81600.00
SADC	11	22	0.00	37400.00	0.00	37400.00
Total (FARA)	45	90	0.00	153000.00	0	153000.00
CACAARI	9	18	0.00	30600.00	0.00	30600.00
FORAGRO	31	62	0.00	105400.00	0.00	105400.00
Total	193		0.00	503200.00	0.00	503200.00

2.5 ODL Course on Projects, Institutions, Experts and NAIS-AGRIS Database Management

2 participants per Country; USD 200 Facilitation Cost per participant

RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	0.00	12000.00	0.00	12000.00
AARINENA	33	66	0.00	13200.00	0.00	13200.00
ASARECA	10	20	0.00	4000.00	0.00	4000.00
CORAF	24	48	0.00	9600.00	0.00	9600.00
SADC	11	22	0.00	4400.00	0.00	4400.00
Total (FARA)	45	90	0.00	18000.00	0	18000.00
CACAARI	9	18	0.00	3600.00	0.00	3600.00
FORAGRO	31	62	0.00	12400.00	0.00	12400.00
Total	193		0.00	59200.00	0.00	59200.00

2.6 Face-to-Face Workshop on Distributed Database Management

2 participants per Country; USD 1000 for travel for each participant; USD 500 for DSA per each participant

USD 200 per participant Workshop Facilitation Costs

RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	0.00	0.00	102000.00	102000.00
AARINENA	33	66	0.00	0.00	112200.00	112200.00
ASARECA	10	20	0.00	0.00	34000.00	34000.00
CORAF	24	48	0.00	0.00	81600.00	81600.00
SADC	11	22	0.00	0.00	37400.00	37400.00
Total (FARA)	45	90	0.00	0.00	153000.00	153000.00
CACAARI	9	18	0.00	0.00	30600.00	30600.00
FORAGRO	31	62	0.00	0.00	105400.00	105400.00
Total	193		0.00	0.00	503200.00	503200.00

2.7 ODL Course on Distributed Database Management						
<i>2 participants per Country; USD 200 Facilitation Cost per participant</i>						
RO/SRO	No. of Countries	No. of Participants	Year 1	Year 2	Year 3	Total
APAARI	30	60	0.00	0.00	12000.00	12000.00
AARINENA	33	66	0.00	0.00	13200.00	13200.00
ASARECA	10	20	0.00	0.00	4000.00	4000.00
CORAF	24	48	0.00	0.00	9600.00	9600.00
SADC	11	22	0.00	0.00	4400.00	4400.00
Total (FARA)	45	90	0.00	0.00	18000.00	18000.00
CACAARI	9	18	0.00	0.00	3600.00	3600.00
FORAGRO	31	62	0.00	0.00	12400.00	12400.00
Total	193		0.00	0.00	59200.00	59200.00
3.1 Establishing Knowledge Network and Community of Practice						
<i>Consultant Fees</i>						
RO/SRO			Year 1	Year 2	Year 3	Total
GFAR			15000	15000	15000	45000
3.2 Setting up of GLOBAL.RAIS Web ring						
<i>Activity</i>			Year 1	Year 2	Year 3	Total
3.2.1	Survey of Databases Architecture of Different Countries		15000.00	0.00	0.00	15000.00
3.2.2	Consultations for Gateway Functions			30000.00	0.00	30000.00
3.2.3	Consultations for Guidelines for Indexing			0.00	30000.00	30000.00
3.2.4	Adapting Search Engine		0.00	0.00	80000.00	80000.00
Total			15000.00	30000.00	110000.00	155000.00
4.1 GFAR ICT/ICM Task Force						
4.1.1 <i>Travel of Task Force Members (5 Members / Task Force)</i>						
<i>2 Meetings annually @ USD 1500 per person</i>						
			Year 1	Year 2	Year 3	Total
GFAR			15000.00	15000.00	15000.00	45000.00
4.1.2 <i>DSA of Task Force Member (5 Member / Task Force)</i>						
<i>2 Meeting annually @ USD 180 per day; 3 days per meeting</i>						
			Year 1	Year 2	Year 3	Total

	GFAR			5400.00	5400.00	5400.00	16200.00
4.1.3	<i>Miscellaneous Cost of Task Force Meetings</i>						
				Year 1	Year 2	Year 3	Total
	GFAR			2000.00	2000.00	2000.00	6000.00
4.1.4	<i>Honorarium and Publishing of Regional Synthesized Reports</i>						
				Year 1	Year 2	Year 3	Total
	GFAR			5000.00	5000.00	5000.00	15000.00
	Total			27400.00	27400.00	27400.00	82200.00
4.2 Strengthening of RO/SRO RAIS Steering Committees							
	<i>Lump sum Grant for partial cost of salaries to technical staff</i>						
	RO			Year 1	Year 2	Year 3	Total
	AARINENA			30000.00	30000.00	30000.00	90000.00
	APAARI			30000.00	30000.00	30000.00	90000.00
	CACAARI			30000.00	30000.00	30000.00	90000.00
	FARA			30000.00	30000.00	30000.00	90000.00
	ASARECA			30000.00	30000.00	30000.00	90000.00
	CORAF			30000.00	30000.00	30000.00	90000.00
	SADC			30000.00	30000.00	30000.00	90000.00
	FORAGRO			30000.00	30000.00	30000.00	90000.00
	Total 4.2			240000.00	240000.00	240000.00	720000.00
4.3 GFAR ICT/ICM Cell							
	<i>Salary of Senior Officer</i>						
	RO			Year 1	Year 2	Year 3	Total
	GFAR			120000.00	120000.00	120000.00	360000.00

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