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REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON A PROPOSED

TECHNICAL ASSISTANCE GRANT

TO

**SERVICE FOR INFORMATION TECHNOLOGY IN INTERNATIONAL AGRICULTURE
(SITIA)**

FOR THE PURPOSE OF

**CREATING A REGIONAL NETWORK IN WEST AND CENTRAL AFRICA
(FIDAFRIQUE)**



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ABBREVIATIONS AND ACRONYMS

CGIAR	Consultative Group on International Agricultural Research
ENDA	Environnement et développement-Tiers Monde (Environment and Development-Third World)
FIDAFRIQUE	Regional Network in West and Central Africa
ISP	Internet Service Providers
NOC	Network operations centre
REFER	Réseau électronique francophone d'information (Francophone Electronic Information Network)
SIFED	Système francophone d'information (Francophone Information System)
SITIA	Service for Information Technology in International Agriculture
TAG	Technical assistance grant



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I submit the following Report and Recommendation on a proposed technical assistance grant (TAG) to the Service for Information Technology in International Agriculture (SITIA) to support the Creation of a Regional Network in West and Central Africa (FIDAFRIQUE), in the amount of USD 900 000 for a three-year period.

PART I - INTRODUCTION AND BACKGROUND

1. Over and above traditional production factors (i.e. labour, capital and land), information and knowledge are increasingly emerging as key elements in rural development. IFAD's strategy recognizes this requirement in that its projects regularly include research, training and TAG components, and stress participatory approaches and community development to ensure that more efficient use is made of knowledge and information, to the benefit of the rural poor.
2. The development of new information technologies and increased integration of the global economy provide important opportunities for substantially improving the access of local communities and projects to information and knowledge. Since 1994, IFAD has developed specific initiatives in this regard. A pilot project was implemented to connect six IFAD-financed projects (in Cape Verde, Central African Republic, China, Guatemala, Namibia and Turkey) through a grant to the International Forum for Development of Sustainable Land Use Systems under the Non-Government Organization/Extended Cooperation Programme facility. Other larger-scale initiatives have been developed, such as the information network linking IFAD-financed projects in Latin America and the Caribbean designed as an Internet-based knowledge and information system at the service of the rural poor in that region, and the Evaluation Knowledge System that aims at disseminating knowledge gained from IFAD evaluation activities. In this way, IFAD also contributes to closing the knowledge gap between the rich and the poor. More recently, IFAD has designed the Electronic Networking for Rural Asia and Pacific Programme to enhance the ability of IFAD-funded projects in the Asia and Pacific region to address rural poverty and improve project implementation through the use of Internet.
3. A survey aimed determining the current modes of operation and capabilities of the communication infrastructures in IFAD-financed projects¹ in West and Central Africa has shown that most projects faced basic problems such as power outages, poor telecommunication infrastructures and/or obsolete computer equipment. On the basis of an analysis of the hardware, software and human resources available within countries and project areas, it is estimated that 41% of IFAD-

¹ The survey was conducted from April to July 1998 in the form of a 57-question questionnaire sent to 44 projects, of which 34 responded.



financed projects in the Africa region are rated as “hard or hardest” to connect, 24% as “medium” and 36% as “easy”. This assessment suggests that emphasis should be placed initially on (i) building and/or strengthening the computer and telecommunications infrastructure at project level; (ii) providing more isolated projects with up-to-date telecommunications infrastructure to assure their full participation in the network through a “positive discrimination” approach towards these projects; and (iii) integrating projects in a network to ensure high-quality basic electronic services, including technical assistance and training.

PART II - RATIONALE AND RELEVANCE TO IFAD

4. The main purpose of FIDAFRIQUE is to improve the technical, managerial and implementation capacity of IFAD projects, to the ultimate benefit of the target groups, through better and more frequent communication between projects, selected government agencies, selected civil-society partners, cooperating institutions and the Fund’s headquarters. The objective is to create an Internet-based network among ongoing and future IFAD projects in West and Central Africa.

5. Once the infrastructure is in place and the basic services have been secured, the programme will provide resources for the design of future content-based development of FIDAFRIQUE, including the creation of region-specific knowledge and information systems. Specific data bases could then be developed on a range of cross-cutting development issues (technical, institutional, management, etc.) and exchanges of information organized using the most up-to-date technology.

PART III – THE PROPOSED PROGRAMME

6. Programme activities include the following (a more detailed description of the components is attached in Appendix I):

- development of basic electronic services through: (i) creation of a network operations centre (NOC), including hardware, software and relevant managerial expertise; (ii) provision, at project level, of computer and communications hardware and software, including installation kits; and (iii) provision of related expertise, including maintenance;
- training, at both regional and project-site levels, of IFAD project staff, selected partners, government agencies and, possibly, cooperating institutions; and
- design of content-oriented services to be developed in a possible future phase.

PART IV – EXPECTED OUTPUTS/BENEFITS

7. By the end of the programme, the following results are expected:

- an **NOC**, or central hub, will have been created to deal with all communication flows, including: (i) 24-hour technical support to projects; (ii) a minimum T1 connection to the Internet backbone; (iii) hosting of web pages; and (iv) an e:mail-to-fax service. **Network management support** is needed to assist projects with a wide range of issues (installation, connection, downloading email, etc.). Hub personnel, if necessary, will travel to project sites to provide such support, and will be charged with monitoring the project installation timetable;
- a **critical mass of IFAD-financed projects (30 projects) and partner institutions (15)** in West and Central Africa will have been connected to the Internet-based FIDAFRIQUE network, equipped with relevant hardware and software. This will include 12 of the IFAD-



financed projects rated as “hard or hardest” to connect, seven from the “medium category” and 11 from the “easy category”. Only projects with at least two years remaining (i.e., with original closing date later than year 2000) will be considered. It is estimated that special communication hardware (satellite communication) is required for the “hardest” projects to connect (in at least seven sites). To be effective in the coming years, projects will be linked systematically to the network and provision will be made at appraisal for adequate hardware, software and training. Partner institutions will include selected government agencies, civil-society organizations and, possibly, cooperating institutions;

- **installation kits** prepared to allow for connections to the network;
- **training** of a sufficient number of IFAD-financed staff and selected agencies to share knowledge and technology and disseminate information among all projects. The training will be undertaken as individual project visits concomitantly with the software installation; and
- **a study on knowledge and information services for IFAD-financed projects** to design content-oriented services will be developed in a possible future phase, including: (i) a needs assessment study at project level; (ii) a review of the state-of-the-art of Internet-based networks development in the region; and (iii) the design of management and institutional arrangements for the services to be created, together with the identification of potential partners at local, regional and international levels.

PART V - IMPLEMENTATION ARRANGEMENTS

8. The implementing agency of the programme will be SITIA, a non-profit-making organization engaged in promoting and enhancing sustainable agricultural practices and natural resources through the development of appropriate information technologies. SITIA has extensive contacts and partnerships with development organizations such as the Consultative Group on International Agricultural Research (CGIAR) and the Food and Agriculture Organization of the United Nations (FAO)². In carrying out this programme, SITIA will function as a "general contractor" with appropriate organizations and vendors to carry out the various programme components. To this end, contacts will be established with major Internet-service operators and traditional IFAD partners, such as the United Nations International Computing Centre, CGNET Services or other providers in order to procure the hardware and software along the architecture suited to the region, and provide training and technical support to IFAD-financed projects.

9. SITIA will ensure that the choice of vendor and the procedures for procuring goods and services are fully consistent with IFAD's procurement guidelines. The vendor selected for implementation will be responsible for planning and connecting all sites. This will exclude the acquisition of equipment, but the vendor will be responsible for providing technical specifications and relaying such information to all projects. The vendor will be selected within the first six-to-eight months of the programme. Any site that requires a satellite telephone system will be assisted in its acquisition as an initial step by the vendor. The latter will establish the NOC and bring all the 1-rated (easier) projects into the network within the second six-month period. Within the following six-

² Managers of some development organizations are represented on SITIA's Board, such as the Executive Director of *Bellonet*, the International Development Research Centre; the Associate Director of the Center for Research on Disease Prevention, Stanford University, United States of America; the former Deputy Director General of the International Centre for Maize and Wheat Improvement and Board Chair of the International Service for the Acquisition and Application of Agro-Biotechnology, Cayman Islands; and the President of CGNET Services International.

month period, all the 2-rated and 3-rated projects will be connected. Training at sites that require it will take place together with implementation.

10. SITIA will consult project management units (PMUs) in implementing the proposed programme with regard to: (i) identification of detailed equipment requirements (i.e., on the basis of available providers and maintenance services) and harmonization of procurement methods; (ii) identification of training needs; and (iii) definition of content-oriented services to be developed during a possible future phase or phases.

11. In undertaking FIDAFRIQUE activities, SITIA will develop partnerships with qualified regional institutions involved in projects related to connectivity development in countries in IFAD's Africa I Region (e.g. Bellanet/IDRC, Environment and Development-Third World, Francophone Information System (SIFED)/Francophone Electronic Information Network (REFER), CGIAR, the International Institute of Tropical Agriculture, etc.).

12. **Time frame.** The network is expected to operate for a period of three years. The tentative schedule is presented in Table 1.

TABLE 1: SCHEDULE OF ACTIVITIES

Date	Activity
April 1999	Grant declared effective
October 1999	Central hub created
December 1999	10 projects and five partner institutions connected
March 2000	20 projects and 10 partner institutions connected
October 2000	Study on knowledge and information services for IFAD-financed projects in West and Central Africa
December 2000	30 projects and 15 partner institutions connected
June 2001	<ul style="list-style-type: none"> • FIDAFRIQUE evaluation; and • preparation of a possible second phase to provide IFAD-financed projects in the region with knowledge and information services.
March 2002	TAG closure

PART VI - PROGRAMME COSTS AND FINANCING

13. Total FIDAFRIQUE costs are estimated at USD 3.05 million, including contingencies (see Table 2), of which IFAD's grant contribution will amount to USD 900 000 (30% of total costs). It is estimated that partner institutions (selected NGOs and government agencies) will be connected to the network on a minimum-cost basis (the programme will provide only installation kits and training). Operating costs for telecommunications amount to USD 2.15 million (70% of total costs) over three years and will be financed directly by the projects (USD 2.05 million, or 67% of total costs) and partner institutions (USD 0.10 million, 3% of total costs). A detailed cost and financing table is provided in Appendix II.

14. IFAD's contribution will concentrate on (i) initial investment, including hardware and software; (ii) training; (iii) the central hub operating costs for the three first years; and (iv) a study for the design of suitable information and knowledge services. IFAD-financed projects, government agencies or cooperating institutions will cover communication costs from their own regular resources.

15. Disbursement from the grant account for payment to vendors for equipment purchase will be made directly by IFAD to the vendor upon receipt of invoices and SITIA statements certifying that goods have been received. Disbursement for all other expenditures will be made directly by SITIA

on an annual basis following IFAD's approval of the annual programme of work and budget submitted by SITIA for the coming year.

16. **Costs for future IFAD-financed projects.** Since recurrent costs for network management at the central hub are quite low (USD 2 400 per site per year), it is estimated that, once the grant is closed, in future, these costs will be borne by IFAD-financed projects and partner institutions through a direct subscription to the central hub services.

TABLE 2: FINANCE PLAN
(USD)

Item	Total Cost	IFAD	Financing IFAD financed Projects	Partner Institutions
Country-level costs				
- Hardware and Software				
IFAD-financed projects (hardware and software) (*)	272 200	272 200	0	0
Selected partner institutions (software)	7 500	7 500		
Subtotal	279 700	279 700	0	0
- Communication Costs				
IFAD-financed projects	1 929 852	0	1 929 852	0
Selected partner institutions	98 280			98 280
Total	2 307 832	279 700	1 929 852	98 280
Hub costs				
Set-up and Installation	67 000	67 000	0	0
Network management	270 000	270 000	0	0
Training	162 000	162 000	0	0
Information and knowledge study	70 000	70 000		
Total base costs	2 876 832	848 700	1 929 852	98 280
Contingencies (6%)	172 610	50 922	115 791	5 897
Grand Total	3 049 442	899 622	2 045 643	104 177
Financing (%)	100%	30%	67%	3%

PART VII - RECOMMENDATION

17. I recommend that the Executive Board approve the proposed technical assistance grant in terms of the following resolution:

RESOLVED: that the Fund, in order to finance, in part, the Regional Network in West and Central Africa (FIDAFRIQUE) for three years, commencing in April 1999, shall make a grant not exceeding nine hundred thousand United States dollars (USD 900 000) to the Service for Information Technology in International Agriculture (SITIA) upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board in this Report and Recommendation of the President.

Fawzi H. Al-Sultan
President



NOTE ON THE NETWORK COMPONENTS

1. As IFAD is not directly involved in project implementation, IFAD staff are not always connected with the project sites on a regular basis. In addition, exchange of information between IFAD headquarters and the projects is often limited to project status reports and disbursement information. There is also a limited amount of exchange of information between projects with similar thematic objectives. This could be due to the lack of a fast and efficient mode of carrying out the information exchange. Both types of exchanges could be streamlined by giving all projects access to an electronic network.

2. Circumstances within both project countries and particular regions create a challenge in terms of providing stable access to any type of electronic network. However, this can be overcome partially by choosing the proper communications methodology. Satellite telephones can work in many cases, but this solution can be costly. Some projects also have problems in finding and maintaining qualified technical support.

3. A detailed plan to connect each of the IFAD-financed projects in the region will be established. For the present time, and based on the survey carried out at project level, IFAD-financed projects are grouped into one of the following four categories according to the difficulty of connecting them: rank 1 = easiest; 2 = medium; 3 = harder; and 4 = hardest to connect to a network. Thanks to the infrastructure improvements taking place in African telecommunications, it is likely that many of the projects ranked as hard or hardest to connect will shift to the medium or easy category by the time the project is fully under way.

4. **Computers.** The minimum configuration is: an Intel-Pentium II or Pentium Pro processor, clock speed of least 200 MHz, 64 Mb RAM, 4.0 GB hard disk; 1.44 MB floppy disk; 18 speed CD-ROM drive; 56 kbs modem; monitor, keyboard and Windows 95-98 or Windows NT workstation as the operating system. Computer servers have been determined unnecessary for the project and will not be used. This means that all projects will distribute their e:mail internally on their own. For the sake of simplicity, it is assumed that all projects will receive a single, stand-alone computer.

5. **Network operations centre.** An NOC is required to ensure that unified maintenance procedures and adequate security levels are provided. Moreover, a hub-based network will allow for the development of information and knowledge services in the future. The latter is composed of e:mail-switching software with a direct connection to the Internet. The NOC performs the following functions in the context of the network: (i) provides a link between the project and other projects, similar to a hub in a wheel; (ii) allows e:mail traffic to flow between the project and any Internet domain; (iii) provides 24 hour-technical support to projects to ensure that they are able to connect and retrieve mail properly; and (iv) provides a gateway to Internet access with at least a T-1 connection to the Internet backbone; Moreover, it has the ability to host web pages and databases and provide an e:mail-to-fax service to anywhere in the world. Web pages will be hosted for all projects at the hub. The computer configuration of the hub is: DEC Alpha or HP network server, 256 MB RAM, redundant hard disks, swappable, 9.0MB, minimum, Microsoft Exchange Server, Microsoft NT operating system. The set-up fee includes the cost of hardware and software. An installation fee will be charged for each project connected to the hub.

6. **Network management support.** A hub will require network management fees to cover technical support and monitoring. Technical support will be available to projects for installation, for problems in connecting, and in downloading e:mail, etc. If necessary, hub personnel will travel to the project site to provide this support. The fees will also cover monitoring of the project installation



APPENDIX I

timetable. If technology changes occur before a project is brought on-line, making the connection easier and cheaper, the project will be brought on in this manner. The fee is a monthly charge but is provided as a one-time charge for a period of three years.

7. **Project installation kit.** Each project will need to install pre-programmed software to connect to the hub and be recognized as part of the network. This will involve a one-time charge.

8. **Telecommunication charges and connections.** Specific dial-up telephone connections will be needed for each of the four types of projects as a general rule, Internet service providers (ISPs) will charge for the initial connection and a monthly connect charge; and the default method of connecting for each project will be to dial into a local ISP. Depending on the “difficulty to connect”, the connection to the hub is done in one of four ways:

- Group 1 (easiest to connect) and partner institutions will dial into a local ISP (with either a local call or long distance call) and connect through the ISP to the hub;
- Group 2 (medium) will dial into an international X.28 provider (carrier), such as SITA which connects to the hub (a local or long distance call and international carrier charges apply);
- Group 3 (hard) will dial directly into the international telephone system to the hub;
- Group 4 (hardest) will dial using either an Inmarsat or Iridium satellite telephone to call into the hub.

9. **Special communications hardware.** A satellite telephone system will be needed for seven of the sites. The current system in place is Inmarsat, the initial cost of which is USD 25 000 per installation. However, in September 1998, the Iridium system was expected to begin its network of 66 low-earth satellites and land-based cellular networks to enable users to call from and to anywhere in the world. This system will require a very low-cost telephone handset (estimated at about USD 3 000) and its use will incur average charges estimated at USD 4 per minute. Many African countries have not yet adopted this system. FIDAFRIQUE will use the Iridium system in the countries where it becomes operational. Since this system is not yet operational, it is estimated that the unit cost for satellite equipment is an average between Inmarsat and Iridium technologies (i.e., USD 15 000). If the Iridium technology is adopted in the countries where it is needed, these costs can be substituted for the Inmarsat costs.

10. **Training and installation.** Training will be conducted as individual project visits. When installation software is used, this will be done at the same time as a training visit. If training is not undertaken, project personnel will install the software themselves. The cost of training is estimated at USD 1 200 per day, and at least three training days per project will be required. Travel, per diem and accommodation costs are included in this estimate.

11. **Study on knowledge and information services for IFAD-financed projects.** The principal focus of FIDAFRIQUE beyond this first phase will be the development of specific value-added components (except web page hosting). The approach will include discussion groups based on thematic topics, web page development to advertise projects and for posting results, and the development of on-line data bases for the sharing of information. To pave the way for content-oriented services development, a study on knowledge and information services for IFAD-financed will be prepared, including: (i) a needs assessment study at project level; (ii) a review of the state-of-the-art of Internet-based networks development in the region, including IFAD-cofinanced subregional



networks such as the Regional Environmental Information Management Project; and (ii) the design of management and institutional arrangements for the services to be created, together with the identification of potential partners at local, regional and international levels.

DETAILED COSTS AND FINANCING (USD)

Category	Unit Cost	No.	Total Cost	IFAD	Financing IFAD financed Projects	Partner Institutions
Country-level costs						
Hardware and Software						
IFAD-financed projects						
"Easy" projects (rate d1)	5 700	11	62 700	62700		
"Medium" projects (rated 2)	5 500	7	38 500	38500		
"Hard" projects (rated 3)	5 500	5	27 500	27500		
"Hardest" projects (rated 4)	20 500	7	143 500	143500		
Subtotal			2 2 200	2 2 200	0	0
Selected Partner Institutions						
Software	500	15	7 500	7 500		
Subtotal			279 700	279 700	0	0
Monthly communication costs						
IFAD-financed projects						
"Easy" projects (rated 1)	182	11	72072		72072	
"Medium" projects (rated 2)	715	7	180180		180180	
"Hard" projects (rated 3)	3300	5	594000		594000	
"Hardest" projects (rated 4)	4300	7	1083600		1083600	
Subtotal			192 9852	0	192 9852	0
Selected Partner Institutions						
Software	182	15	98 280			98 280
Subtotal			2 028 132	0	1 929 852	98 280
Subtotal			2 307 832	279 700	1 929 852	98 280
Hub costs						
Set-up	25 000	1	25 000	25 000		
Installation	42 000	1	42 000	42 000		
Subtotal			67 000	67 000	0	0
Network management						
IFAD-financed projects	6 000	30	180 000	180 000		
Partner institutions	6 000	15	90 000	90 000		
Subtotal			270 000	270 000	0	0
Training						
IFAD-financed projects	3600	30	108 000	108 000		
Partner institutions	3600	15	54 000	54 000		
Subtotal			162 000	162 000	0	0
Information and knowledge study						
Study	70 000	1	70 000	70 000		
Total base costs			2 876 832	848 700	1 929 852	98 280
Contingencies	6%		172 610	50 922	11 5791	5 897
Grand Total			3 049 442	899 622	2 045 643	104 177
Financing (%)			100%	30%	67%	3%