



Connecting
People, Technology and Knowledge
for Agricultural Innovation



The CGIAR ICT-KM Program 2006-2007 Annual Report

Working to make a difference

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Foreword: Message from the CIO

Building on the excellent progress the ICT-KM Program made during its second year, I am pleased to report another year of solid achievements in the delivery of our various projects and activities. Indeed, as I look back over the past three years, I see a CGIAR in transition and feel privileged that the Program has been able to make a contribution by applying information and communications technology (ICT) and knowledge management (KM) approaches to assist scientists around the globe to carry out research more efficiently.

More than three years ago, the Program kicked off 14 inter-related projects along three thrusts seeking to improve connectivity in the CGIAR and enable staff located in even the remotest of regions to access a wide range of online tools and services. At the same time, staff were also given the necessary know-how to collaborate and share information in a way that would be beneficial to all participants. Today, all but four of those projects have achieved completion.

Milestones in the Program's short history include the launch of the CGIAR's first System-wide intranet/extranet and library; strengthened communities; increased awareness and application of Monitoring and Evaluation (M&E) methodologies; financial savings; increased international recognition; and the development and implementation of Knowledge Management/Sharing (KM/S) tools and approaches.

The CGVlibrary, one of our most ambitious projects to date, has been experiencing an increasingly high number of hits since its official launch and is being lauded as an example for other organizations to follow. In recognition of its contribution to CGIAR research, the team behind this System-wide library received the CGIAR's Science Award for Outstanding Scientific Support in 2006.

Another 2004 Investment Plan project, the Consortium for Spatial Information (CSI), has also achieved considerable success. Since its launch, the project site has had over 100,000 unique visitors. In addition, and as a testament to its achievements, the CSI has been accepted as a member of the United Nations Geographic Information Working Group (UNGIWG). This is the first time a non-UN organization has joined the Group.

Although there is much to be proud of when I consider these achievements, the conclusion of another year in the life of the Program seems an appropriate time to consider the true impact of our work to date. Has the Program really made a difference? Has it achieved something durable? Are we moving towards our ultimate goal of creating a CGIAR that functions as a seamless network – an organization whose members are able to work with agility and collaboratively with both internal and external partners?

I believe we made considerable progress towards a shared vision of a seamless CGIAR System. A strong foundation has been created based on improved connectivity, access to collaborative and information sharing tools and platforms, and a work culture that is moving towards greater knowledge sharing and collaboration. Within the CGIAR, the most difficult work has been accomplished with this foundation. Now this work must be

consolidated. Further applications need to be developed, uses and users need to be expanded, and training and ICT-KM exposure needs to be broadened to reach more staff. While this is being accomplished, the complementary step of reaching out to partners should be accelerated. This has already begun.

The CGIAR is increasingly being seen as a global leader in ICT-KM-related areas, whether it is concerning the implementation of innovative information access technologies, the serious application of knowledge management approaches to improve performance, or the use of data standards in support of more effective scientific research. This is demonstrated through organizations such as FAO, CTA and GTZ recognizing the relevant ICT-KM work within the CGIAR and wanting to collaborate both formally and informally with the CGIAR.

Much more needs to be done if we are to maintain and build on the achievements to date. Without continued support, staff might lose sight of System-wide goals, and it is vital that we maintain our present momentum. This is where the Program's new Investment Plan comes into play.

Our plans for 2007 will provide further support to consolidate the gains to date of activities started under the 2004 Investment Plan and extend the Program's focus beyond the CGIAR Centers' infrastructure to improving broader access to scientific data.

I would like to thank all of those involved in moving the Program forward during the past year. Without them, the Program would not be able to move towards its vision of a CGIAR without Boundaries. As we recommit our energies for another year, we look forward to facing the challenges that lie ahead together.

This document provides information on activities and results at the Program and projects levels over the past year and indications regarding future plans. We hope you enjoy learning more about the Program.

Enrica Porcari
CGIAR Chief Information Officer
Leader, ICT-KM Program

Executive Summary

The ICT-KM Program promotes and supports the use of information and communications technology (ICT) and knowledge management (KM) to improve the effectiveness of the CGIAR's work on behalf of the poor in developing countries.

The ICT-KM Program made good progress throughout 2006 as it implemented its many activities aimed at creating a CGIAR without Boundaries. Much has been achieved in 12 months, and lessons have been learned that will benefit the Program as it enters its second phase.

Four projects under the Program continue to be implemented, while others came to a successful conclusion in 2006. The year's high spots include the launch of CGXchange (the CGIAR's System-wide intranet/extranet) at nine Centers, the official launch of the CGVlibrary, and the growing use of Knowledge Sharing techniques at CGIAR events. Our projects continue to support the work of our scientists in a multitude of ways – from providing excellent GIS tools to enabling multi-way videoconferencing between Centers.

CGXchange has been making steady progress since its launch at the CGIAR's 2005 Annual General Meeting. Recently, DGroups, one of the collaboration tools available through the site, has been attracting the interest of groups outside the CGIAR. Users can also access the Oxford English Dictionary online, take part in an interactive computer awareness quiz, and view a tutorial on the CGIAR's latest Spam Control System. Collaboration sites for the Alliance Office are also under development. In addition, several Centers have endorsed the technology behind CGXchange by adopting the Aqualogic/BEA portal platform to redesign their own intranet sites.

One of our projects, **the CGVlibrary**, has been successfully completed and is now experiencing almost 30,000 searches a month, many of those from organizations in developing countries. The team behind this successful project was recognized at the CGIAR's 2006 Annual General Meeting when it received the CGIAR's Science Award for Outstanding Scientific Support.

In other developments, **collaborative efforts** involving all CGIAR Centers have resulted in huge savings from joint software purchases and orders (more than US\$500,000, double last year's amount); while collaborative efforts from the Information Management Community has provided CGIAR staff with 1.4 million dollars worth of publications (with each Center staying within its library budget for the year) and has given CGIAR staff trial access to three prominent online information collections that cover a broad range of subjects and offer authoritative peer-reviewed information.

The Program's **successful workshops**, training sessions and involvement in international events are all a manifestation of the Centers' continued desire to come together as a community. From facilitating the CGIAR-CSO Forum, to holding a Learning, Review and Planning Workshop for CGXchange, to facilitating a GFAR 2006 Conference session, to conducting a knowledge sharing, interactive workshop during the 'First IAALD Africa Chapter Conference', to holding a meeting with the CGIAR training community and some of its partners, CGIAR staff from across the System have enthusiastically participated, showing that we really are on our way to achieving a CGIAR without boundaries.

Besides implementing our various projects in 2006, we have strived to improve by continuously reviewing our Program activities and results. A three-pronged review carried out early in 2006 showed that the Program was on track to achieving its goals and also identified some areas of improvement that need to be addressed.

We will continue to work on successfully completing remaining projects from the previous Investment Plan while also addressing some of the challenges identified in the review of the Program. We have recently analyzed our use of M&E (monitoring and evaluation) and identified a number of areas (detailed later in this report) where we can improve and we will take the necessary corrective actions as we move forward.

Lastly, we are happy to announce that the Program's new Investment Plan has been approved. Our plans for 2007 will provide further support to consolidate the gains to date of activities started under the 2004 Investment Plan and extend the Program's focus beyond the CGIAR Centers' infrastructure to improving broader access to scientific data.

1. Projects Highlights

The ICT-KM Program, managed by the CIO Office, works towards its objectives through a two-pronged approach: System-wide Program efforts coordinated directly by the CIO Office, and a coherent set of projects implemented by Centers. The following section highlights the activities of the projects implemented under the Program's 2004 Investment Plan (IP04).

Grouped under three thrusts (Content for Development, Connectivity, and Work Culture), ten of the fourteen original IP04 projects were extended into 2006 as a result of the complex nature and different challenges facing the CGIAR. Many of these projects have since come to a successful conclusion. The other four projects (Online Learning Resources, Knowledge Sharing, and Scientific Data Standards and Exchange: Capacity Development) were completed and reported on in past Annual Reports.

The table below provides highlights related to IP04 projects in 2006.

Highlights of 2004 Investment Plan Projects

	Project & Lead Center	2006 Highlights and Challenges	Status & Next Steps
C O N N E C T I V I T Y	Second Level Connectivity (ILRI)	<ul style="list-style-type: none"> -Completed installation of improved connectivity at 10 locations -Four additional sites have improved connectivity following IT advice from project -ICT Briefcase development is in final stages -Challenges faced by the project include changing priorities for Centers and difficulty in identifying common solutions for multiple locations 	<ul style="list-style-type: none"> -No cost extension in progress to complete next phase -Program has requested for review of upgraded sites for lessons learned before implementing phase II. -Development of ICT briefcase and pilot activity to identify an acceptable model for ICT support for regional and country offices has been approved for extension - Proposed network review
	Enterprise Security and Business Continuity (IRRI)	<ul style="list-style-type: none"> -Pilot Centers in Asia and EMEA conducted detailed IT risk and security assessment -Non-Pilot Centers in Asia and EMEA received site visits to assist in identifying IT risks - Challenges faced by project include different needs and approaches to Business Continuity from Center to Center and difficulty contracted consultants had trying to understand the complex CGIAR system 	<ul style="list-style-type: none"> -Thorough evaluation of project activities to date requested and to be overseen by Program -New ES plan, led by CIP, developed for Americas region and submitted; awaiting approval

C O N T E N T f o r D E V E	Consortium for Spatial Information (IWMI)	<ul style="list-style-type: none"> -Since launch in 2004, over 100,000 unique visitors -CGIAR metadata initiated and active in all Centers -Agreement reached with FAO/SRDN to join CGIAR's metadata with FAO, WHO, UNEP, OCHA, and WFP -CSI invited to join the UN Geographic Working Group (UNGIWG) – represents the CGIAR as the first non-UN member of the Group Website: http://csi.cgiar.org	<ul style="list-style-type: none"> -Project activities completed -Minimal support from ICT-KM Program for continued activities in preparation for future CGIAR Information GPGs needs
	Advanced Research Networks (IRRI)	<ul style="list-style-type: none"> -IRRI and CIP became the first two CGIAR Centers to take part in a videoconference using the Access Grid -Multi-way videoconferencing now routine at IRRI - CIAT successfully tested a simultaneous videoconference over Internet2 (an advanced network for educational and research purposes) with CIMMYT, CIP and IRRI 	<ul style="list-style-type: none"> -Project activities completed
	Utilization of Intelligent Information Systems for Plant Protection (ICARDA)	<ul style="list-style-type: none"> -Developed expert systems and e-learning modules -Knowledge acquisition tools were developed for barley, wheat, and chickpea -An external expert on intelligent systems, Dr. Richard Plant, gave the project a favorable review website: http://uispp.icarda.cgiar.org/uispp	<ul style="list-style-type: none"> -Pilot project activities completed -Proponents exploring options for further funding beyond proof of concept phrase
	Desktop Video Conferencing (ICRISAT)	<ul style="list-style-type: none"> -Video conferencing equipment, relevant software and technical guidelines have been tested in nine locations within the CGIAR with recommendations on use -461 licenses of Live Communications Server (LCS) standard client licenses were distributed via the web to every Center (30 licenses per Center) 	<ul style="list-style-type: none"> -Project activities completed
	Virtual Library Service (IFPRI)	<ul style="list-style-type: none"> -Operational since June 2006 -160 electronic resources searchable through site -15 Center libraries searchable -4000 e-journals and publications linked -Usage for CGIAR catalogs alone has increased from 903 searches in June 2006 to 27,758 searches since service went online -Awarded CGIAR Outstanding Scientific Award at AGM in 2006 -Presentation of the CGVlibrary at the USAIN (United States Agriculture Information Network) 2006 Conference in which CGVlibrary was hailed as the example to follow when creating a one-stop shop for agricultural information. website: http://vlibrary.cgiar.org	<ul style="list-style-type: none"> -Project activities completed. New activities supported under the 2006 Investment Plan

L O P E N T	E-Publishing (Bioversity International)	<ul style="list-style-type: none"> -beta version of E-Publishing software completed and demonstrated at IFPRI (a large publishing Center) -Challenges included changing Project Leaders with busy schedules and identifying common publishing community and needs throughout the CGIAR 	-E-Publishing software undergoing testing for identifying means forward
	Virtual Resources Center Infrastructure (Bioversity International)	<ul style="list-style-type: none"> -CGXchange platform established and populated with useful portals such as CGIAR job opportunities and CG news for sustainability -Project provided support to communities and Centers seeking to increase their involvement using CGXchange -Tutorials and training prepared for CGIAR staff website: www.cgxchange.org	-VRCI project activities completed; CGXchange development will continue under 2006 Investment Plan
	Virtual Academy for the Semi-Arid Tropics (ICRISAT)	<ul style="list-style-type: none"> -Created information modules on drought literacy -Collaborated with a local community radio to deliver information via satellite digital radio technology to rural communities in Niger -Established an Internet-connected information hub that supports three village access points in India. -Finalist in AGM Innovation Marketplace for CSO-CGIAR collaboration -Participated in the 93rd Indian Science Congress (ISC) in Hyderabad, India – played a key role by organizing the First National Virtual Farmers Congress. website: http://www.vasat.org/	-Project activities completed
	Web Content and Usage Analysis (Bioversity International)	<ul style="list-style-type: none"> -Project completed the development of two guides for CGIAR distribution: evaluating usability, and usefulness of web-based products and CGXchange, as well as measuring usage of CGXchange -Challenges faced by project were the changing timeline and priorities of CGXchange platform, which affected the delivery of this project 	<ul style="list-style-type: none"> -Extension requested and granted to: -Complete web-based guide to include evaluation of usage -Distribute and promote usage of guides to CGIAR Centers -Conduct evaluation of CGXchange on current and future usage, usability and usefulness

Further information on the above highlights can be found in Annex 7.1: Summaries of Projects' Annual/Final Reports.

1.1 A Closer Look: Recognition of Projects

Team Award

The CGIAR Virtual Library team was awarded the 2006 Outstanding Scientific Support Award during the CGIAR Annual General Meeting in December 2006.



WINNING SMILES: Nancy Walczak (IFPRI's Head of Computer Services), Luz Marina Alvare (IFPRI's Head of Library and Knowledge Management) and CGIAR CIO Enrica Porcari at the CGVlibrary booth at AGM06

The award was given to the team as a result of its cooperative effort, high standards of excellence in performance, and outstanding contribution to research efforts in the CGIAR System.

UNGIWG Membership

The Consortium for Spatial Information (CSI), a successful project funded by the 2004 Investment Plan, has been accepted as a member of the United Nations Geographic Information Working Group (UNGIWG). This is the first time a non-UN organization has joined the Group.

UNGIWG is tasked with the development and adoption of standards and protocols to be used by all UN agencies, and is one of the premier organizations supporting the Global Spatial Data Infrastructure (GSDI initiative) and the UN-SDI initiative. In particular, UNGIWG promotes the use of geospatial information for sustainable development, resource management and environmental conservation within developing countries. <http://csi.cgiar.org/index.asp>

VASAT Makes Shortlist

Another ICT-KM supported project, the Virtual Academy for the Semi-Arid Tropics (VASAT), benefited from an invitation to CSOs (civil society organizations) working with CGIAR-supported Centers and Challenge Programs to participate in the annual

Innovation Marketplace at the CGIAR's 2006 AGM. Short-listed from more than 700 invitees, VASAT took part in a poster exhibition that highlighted the innovative character of each partnership, along with ideas for improving and expanding partnership initiatives. Summaries of the posters were then presented in an Innovation Marketplace Workbook designed as an aid to discussion during the CSO-CGIAR Forum.

2. Program Highlights

The following section provides highlights related to the System-wide Program efforts coordinated directly by the CIO Office.

2.1 Savings: Collective Cooperation yields Gains

Through concentrated efforts by the CIO Office in collaboration with CGIAR Centers, the Program yielded considerable financial savings for participating Centers. These savings, detailed below, are due to System-wide or collective Center-based purchases of applications and software. Such purchases have saved money for some Centers and also provided staff at other Centers with much-needed tools that were previously unavailable to them.

In addition to the IT savings detailed below, collaborative efforts involving Information Managers from the CGIAR-LIS Consortium have resulted in significant gains. Working with the CIO, the Information Managers Community has gained access to 98 journals and one agricultural database – with each Center staying within its library budget for the year. Purchased separately, these journals would have cost the Centers an additional US\$1.4 million. Publications include CABDirect, Science Online, Plant and Soil, and Theoretical and Applied Genetics, to name a few. To access many of these publications, please go to the CGVlibrary (<http://vlibrary.cgiar.org>).

A System-wide agreement was also signed with ESRI, the GIS software leader, allowing spatial scientists throughout the CGIAR to gain access to specialized software at approximately half the commercial price.

IT Group Savings Through Collaborative Action	
Products	IT Saving (USD)
CGNET	\$ 168,420.00
Adobe	\$ 1,048.00
CDW	\$ 336,948.40
WinZip	\$ 10,166.00
Powerlite NX	\$ 11,827.62
Total Savings USD	\$ 528,410.02

2.2 Consulting and Collaborating with Partners

The Program's successful workshops, training sessions and involvement in international events are all a manifestation of the Centers' continued desire to come together as a unified System. From facilitating the CGIAR-CSO Forum, to holding a Learning, Review and Planning Workshop for CGXchange, to facilitating a GFAR 2006 Conference session; to conducting a knowledge sharing, interactive workshop during the 'First IAALD Africa Chapter Conference', to holding a meeting with the CGIAR training community and some of its partners, CGIAR staff from across the System have enthusiastically participated, showing that we really are on our way to achieving a CGIAR without boundaries. All of these events provide opportunities for the Program to sensitize stakeholders to issues relevant to the Program, give exposure to and training in ICT-KM tools and approaches, build collaborative relationships and collective action with key partners, and consult widely and be better informed for future planning. More information on these events follows below.

2.2.1 IAALD in Nairobi

The ICT-KM Program hosted a knowledge-sharing event in Africa designed to be an interactive workshop with a difference. Conducted during the 'First IAALD Africa Chapter Conference', held in Nairobi, Kenya, the one-day side event covered a range of creative participatory activities. In addition to a "speed dating" session, which presented an opportunity for participants to get to know each other, the event included a world café session that was designed to facilitate the exchange of experiences and suggestions as well as to generate ideas about knowledge sharing interactively.



The workshop, entitled *Knowledge Sharing in African Agricultural Research*, attracted a mixed group of more than 50 participants representing agricultural information professionals, intermediaries, scientists, donors and grassroots stakeholders. The event enabled participants to explore knowledge sharing techniques currently in use and of potential use in African agricultural research, and helped them identify

priority players/information, knowledge needs, capacity development needs and opportunities for high value investments in innovative activities.

At the end of the workshop, participants were better equipped to build the sort of relationships that are essential for creative collaboration in agricultural research for development. In addition, they came away with the necessary know-how to optimize participation in certain collaborative processes that arise from their organizations' work.

2.2.2 GFAR in New Delhi

The ICT-KM Program was invited to organize one of nine parallel working group sessions at the Global Forum on Agricultural Research (GFAR) 2006 Triennial Conference in New



Delhi, India, in collaboration with colleagues from IWMI. During the session entitled “Blending Knowledge Systems for an Inclusive Approach to Innovation”, the Program experimented with knowledge-sharing methods, which showed much promise for enhancing communication between participants in such events.

Together, the four guests and the audience at a chat show (a refreshing alternative to formal presentations by a few experts) painted a picture of a more collaborative approach, one in which the diverse stakeholders in research have ample opportunities to share knowledge, beginning in the early stages of research and continuing throughout the remainder of

the process. Such an approach, they argued, leads to greater recognition that farmers don’t just have problems, but also valuable local knowledge, and their involvement in the whole process increases the likelihood that new knowledge resulting from research might be put to good use.

By the end of the session, the facilitators had a detailed set of recommendations, reflecting input from all participants, which will feed into GFAR’s next triennial strategic plan. For example, on the issue of local knowledge, the group recommended, among other things, renewed efforts to “institutionalize” farmer participatory research, strengthen farmer organizations and create “living documents” to record instructive uses of local knowledge. With respect to the design of research, they urged the introduction of new mechanisms, such as “outcome contracting”. IWMI Director General Frank Rijsberman explained that this process will enable researchers to identify “impact pathways” in consultation with partners and end users, define the impacts for which they believe they can be held accountable and then enter into performance contracts, in which funding is tied to the delivery of those outcomes. To reinforce such mechanisms, it was also recommended that research managers modify performance incentive systems to include clear indicators of successful knowledge sharing that include more than just scientific publications.

“It was one of the best workshops I ever attended. We have to promote a forum in which all can express their views. Otherwise, we’re wasting our time.” – Mohammed El Kholy, forum participant

2.2.3 FAO in Rome

Through coordinated efforts between the CGIAR's CIO Office and FAO's Knowledge and Communication Department, collaboration between the two organizations has become more commonplace. This strengthened partnership focuses on sharing information, opportunities and knowledge, while looking for opportunities for concrete collaboration and resource sharing.

Joint efforts and projects include FAO's staff involvement in the CGVlibrary project, metadata work, translation undertakings, and the CGIAR's participation in the new AGRIS Alliance. This latter involvement started with an Expert Consultation in October 2005 that addressed the goal of developing coherence in international information systems for agricultural science and technology. The CGIAR, together with FAO and a few other key players, like GFAR, is now helping AGRIS achieve a global role in exchanging and managing research and extension knowledge.

"Thanks to the coordination provided by the Chief Information Officer and the various working groups, we now have the unique opportunity to work with the entire CGIAR System, and this is a really important development for all of us at FAO. In the long term, if we align more of the activities of the CGIAR and the FAO, we can achieve more together. This is a strengthened partnership, and the partners are serious about working with a joint agenda. "

– Anton Mangstl, Director of the Knowledge Exchange and Capacity Building Division, FAO

2.2.4 CGIAR Secretariat - CSO Forum Dialogue for knowledge sharing and improved collaboration

In November 2006, a diverse group of researchers and development professionals kept up a continuous stream of informative and constructive messages in the CGIAR's first facilitated online dialogue about its partnerships with CSOs (civil society organizations).

Referred to as a "virtual conversation", the dialogue was facilitated by the ICT-KM Program and was the positive prelude to the day-long, face-to-face CSO-CGIAR Forum at the CGIAR Annual General Meeting in December.



Involving more than 100 CSO representatives, members of the CGIAR, staff of the Centers and Challenge Programs, and others, the Forum featured a series of lively group discussions aimed at identifying lessons learned and new avenues for improved collaboration, and drew on the experience of nearly 50 current CSO-CGIAR partnerships presented in a three-day Innovation Marketplace.

Personnel from the ICT-KM Program's Knowledge Sharing (KS) project incorporated several KS techniques, including a world café and a chat show, into the Forum.

The Program, with Bellanet International and the CGIAR Secretariat, supported and facilitated both these events.

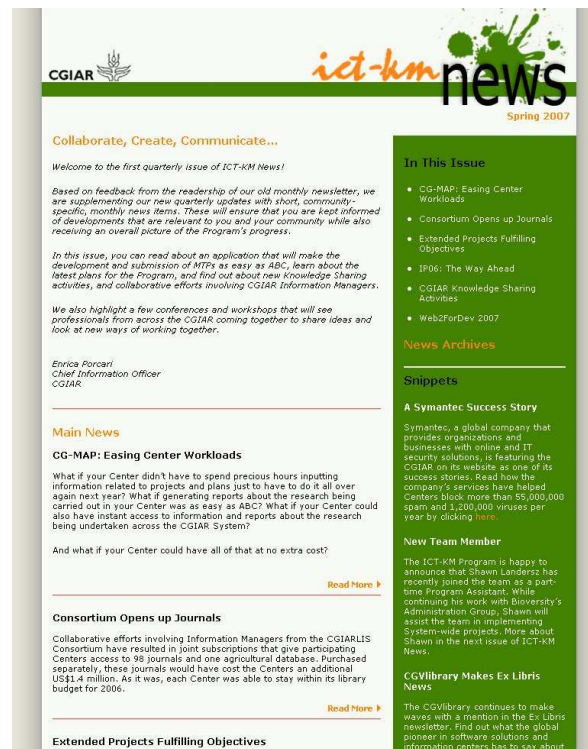
"It was my first time to participate in such virtual conservation forum. I have to confess that I am very pleased to be part of it because I have learned more. All my expectations are met. The thing I have liked most is getting to know better the various types of partnerships being nourished by both CG centers and CSOs. And also, from the participant's reactions, I have a good grasp of how this fruitful partnership could be enhanced. Thank you." - Quote from a participant in virtual conversation

2.3 Communications

"If a tree falls in the woods and no one is around to hear it, does it still make a sound?"

If the ICT-KM Program is to effect positive change across the CGIAR, it needs to keep CGIAR staff informed of the opportunities, changes, and outputs produced by the Program and the various projects it implements. In line with this, the Program is implementing a new communication strategy that will:

- A new, more informative and interactive website, is being launched at the end of July.
- Monthly messages provide the IM and IT CoPs with specific Program information relating to their work, along with updates on areas of interest.
- Quarterly updates provided to a broad CGIAR audience on ICT-KM activities, events and developments
- Regular updates on a strategic project that has a wide CGIAR impact. The CG-MTP Analysis Program (CG-MAP), which is currently in the process of approval and development, is one such example.
- A new blog is being implemented as part of our new website. This new blog will present news about ICT-KM's projects and products, as well as guest features about trends in information and communications technology and KM. We hope that as we come to use this new medium, we enhance the dialog among our staff and our partners.



2.4 New Staff

Jenin Assaf joined the Program in October 2006 as the Program Officer. Her main duties include coordination of the Investment Plan activities and communications.

Tania Jordan, a CIAT software engineer, was seconded to the Program. Based in Cali, Colombia, Tania focuses on coordinating IT technical activities such as overseeing System-wide contracts and purchases, carrying out research and surveys on the technical needs of the CGIAR, and providing assistance for CGXchange.

The recruitment of these members of staff is a direct response to M&E assessments in the past year.

2.5 Other Program Highlights

Technical

- CGXchange was launched by the CIO at ILRI, ICRAF, WorldFish Center, Bioversity International, CIMMYT, IWMI, ICRISAT, CIP and IFPRI.
- CIAT and IWMI adopted the Aqualogic/BEA portal platform (the technology behind CGXchange) to redesign their intranet sites.
- New CGNET contracts negotiated by the Program and members of the IT CoP include VMware, increased bandwidth, reduced consulting rates, and new Off-Net Voice rates, to name a few.
- CGNET partnered with Symantec to deploy a Spam Control System for CGIAR users, providing them with expanded spam and virus protection. Flash tutorials to help users learn about the options of this System were uploaded onto CGXchange:
http://eval.symantec.com/mktginfo/enterprise/customer_successes/ent-cgiar_2007.pdf
- A computer Security Awareness Quiz was created and made available on CGXchange.

Collaborations

- The ICT-KM Program in collaboration with the Gender & Diversity Program compiled a handy booklet, *No Travel Required*, that gives guidelines and information on how to prepare and run a large online event.
- The Program secured a two-year institutional membership with the International Association of Agricultural Information Specialists that covers the CGIAR Secretariat and all 15 Centers.
- As the result of a collaborative initiative involving FAO and the CGIAR, free trial access to three important electronic information collections (Blackwell, Emerald and Scopus) has been granted to the staff of both organizations. The collections cover a broad range of subjects and offer authoritative peer-reviewed information.
- The CGIAR training community and some of its partners met in Washington D.C. to look at opportunities for multi-Center initiatives in education and training with the focus on distance and e-learning. A three-week DGroups discussion, which took place the month before, allowed a large training community of practice to discuss priorities in training and education and how to best tackle them as true inter-Center collaborative activities.

3. Phase II - Investment Plan 2006

While implementing the 2004 Investment Plan and coordinating its various activities, the Program also developed and obtained approval for its next phase. Although the 2006 Investment Plan will consolidate the gains of the 2004 Investment Plan by focusing on a small number of projects with a large impact (Knowledge Sharing and CGXchange), it also includes plans to develop ICT-KM approaches that will support the generation, distribution and uptake of information global public goods (iGPGs) for poverty alleviation.

The CGXchange project focuses on improving the CGIAR's online platform (CGXchange) as well as online tools for improving CGIAR effectiveness (CG-MAP, the CGVlibrary, and Digital Content for Learning). The Knowledge Sharing project seeks to achieve institutional and research improvements through targeted knowledge sharing techniques and methods.

Projects and activities supported in the 2006 Investment Plan include:

CGXchange

Objective: to make CGXchange, CGIAR's intranet/extranet, fully operational and sustainable, provide access to critical content and collaboration tools while making it an indispensable tool for most if not all CGIAR staff, and make the site accessible to CGIAR partners.

Lead Center: Bioversity International. Project Coordinator: Antonella Pastore

CGVLibrary (accessible through CGXchange)

Objective: to make important information resources more accessible to users both within the CGIAR Centers and in partner organizations, dramatically expanding the services created through the first phase.

Lead Center: IFPRI. Project Coordinator: Luz Marina Alvare

Quality CGIAR Digital Content for Learning (accessible through CGXchange)

Objective: to increase the availability, accessibility and re-usability of CGIAR digital content for learning available through the Online Learning Resources (OLR) repository.

Lead Center: CIP. Project Coordinator: Thomas Zschocke; Co-coordinator: Jan Beniest

CGIAR-MTP Analysis Program (CG-MAP) (to be accessed through CGXchange)

Objective: to develop a system to ease the Medium-term Plan (MTP) application process for Centers as well as provide System-wide access to project information allowing easier analysis.

Lead Center: Bioversity International. Coordinating office: ICT-KM Program Office

Knowledge Sharing: Scaling Up and Strengthening Champions

Objective: to improve CGIAR effectiveness by promoting collaborative learning and innovation, and supporting effective use of Knowledge Sharing (KS) approaches and tools throughout the CGIAR. The focus is on incorporating KS approaches

strategically at the System level, on extending the lessons from the first phase to new domains within Centers and on strengthening KS champions.
Lead Center: CIAT. Project Coordinator: Simone Staiger

Knowledge Sharing: Scaling Out

Objective: to improve the effectiveness of research partnerships involving CGIAR Centers and partners by building KS capacity.
Lead Center: IWMI Project Coordinator: Sanjini De Silva

Planning for the Future

Objective: gather information on the most pressing information GPG needs and ICT-KM-related system priorities, and develop a strategy and investment plan to address these needs expeditiously and effectively.
Coordinator: Chief Information Officer

3.1 Investment Plan 2006 Project Highlight: CG-MAP – Analytical Navigation through the CGIAR

Using the Medium Term Plans (MTP) guidelines, the Program is developing the CG-MTP Analysis Program (CG-MAP). This System-wide application will help CGIAR Centers and Challenge Programs compile information for their annual MTP submissions and make all project information available at one location, thereby promoting knowledge and information sharing and increasing System-wide analysis.

Before the Program began developing the system, it assessed current needs and the best ways to address those needs through a three-day workshop. The event identified the MTP document as the basis for analyzing information across the CGIAR System.

CG-MAP, which will contain both a central and locally managed component, is in the initial phases of development and will be launched at the CGIAR AGM in 2007.

"The main reason for considering a System-wide MTP tool is to reduce our workload. The associated database will remove the need to re-do the entire MTP every year. The data in the database will only need updating each year, and perhaps 50-60% of the content will not need changing. The production of the MTP report itself will be much easier for us all, because it will be automatically generated, all formatted, by the tool. There will be no misunderstandings about what is required, and we will all use the same interpretations and definitions. The Science Council will be greatly encouraged (and have in fact confirmed this) to minimize the changes from year to year. And finally, we, the Science Council, the donors, anyone, will be able to undertake System-wide searches and reports of the database, thereby greatly reducing the need for all those special studies and reports we are often lumbered with - including the Regional MTPs"
– Paul Harding, Assistant Director General Bioversity International

4. A Learning Focus: Utilizing Monitoring and Evaluation (M&E) to Improve Results

The Program decided at the outset to try to implement a culture of ongoing, learning-based monitoring and evaluation in order to identify problems and opportunities early enough to take corrective action. A comprehensive M&E Plan was developed with the Project Coordinators for both the Program and projects levels. Two sets of annual surveys of stakeholders were carried out and an intensive three-pronged analysis at the Program, Management and Financial levels was made early in 2006. Taking this course has contributed positively to decision making, to the formulation of revised project strategies and the creation of the second Investment Plan. A side benefit has been the uptake by other Programs within the CGIAR of related M&E strategies. While Program management is positive about the M&E's role in the Program, it recognizes that it could do much better at both the Program and projects level. A consultant gave advice on where the Program made progress and where it could improve the use of M&E.

A summary of the analysis by the M&E expert follows:

Overall, the Program's commitment to using M&E appears to have remained strong throughout 2006. Program management elicited feedback from stakeholders both within and outside the CGIAR, reported on the findings and articulated its intentions to learn from and act on the findings. The Program's approach to M&E appears to have influenced its participants. The idea of reflection, learning and frank reporting has largely been picked up by project teams as evidenced by the content of their annual reports. Most project reports included their own versions of what worked, what did not work, what was learned, etc. This is probably the result of Program management: modeling good M&E practices; consulting project coordinators at the outset about the reporting format to be used; being sensitive and responsive to suggestions from the project teams regarding M&E and annual reporting; and making M&E technical support available to the project teams.

Although the rhetoric and ritual of M&E have been credibly established and accepted – and this is good and important progress – practice falls short of a full commitment to the beneficial use of M&E as a management tool. The available M&E support was underutilized by the project teams and the "lessons learned" and "what worked" sections of their 2006 annual reports often fell short of full, frank, evidence-based reporting. There is much room for improvement in all of the reports in presenting information about what has been learned about managing the various activities and what changes were made or in providing advice for improved management in the future.

Solutions to the lack of deep uptake of M&E by the project teams have implications at the project, Program and Centre management levels. The original M&E plan was formulated with participation of Project Leaders, however, for some, the implementation became unwieldy and too complex once project activities started. Many of these projects were infrastructure or systems-focused - the kinds of projects in which "outputs" rather than "outcomes" are the ultimate objectives. Those that are focused on outcomes did a commendable job, although this was not intended. In practice, once the projects got rolling, M&E was really only given profile and importance by Program management at annual report time. This tended to make it a compliance-based activity, rather than something that added value. And finally, there was competition for staff time between 'day job' work in the Centers and the 'additional' work of involvement in

the ICT-KM projects. The usual result, and this is a classic problem, is that the important but not urgent M&E work goes on a back burner and is largely ignored only to be given cursory attention at the last minute.

The following actions by Program management may help improve M&E practice and commitment in future projects and at the Program level as well as increase knowledgeable support for M&E in the environments projects operate:

- *Keep the M&E plan small, simple and doable*
- *Create group reporting opportunities where peer pressure can stimulate uptake*
- *Make accessible easy-to-use low time demand tools and reporting frameworks*
- *Make M&E more intrinsically relevant and useful to the projects*
- *Require 'output' projects to focus solely on monitoring and reporting on two aspects: technical progress and project management processes*
- *Create a culture of supplying evidence with claims*
- *Use explicit change models to easily track progress towards "big picture" results*

5. Program Strategy – Looking Back and Ahead

The Program and project activities described in the preceding sections are guided by the ICT-KM Program strategy, which was developed in 2003/04. Based on feedback received through annual M&E efforts, workshops, meetings with CGIAR staff and external partners, and from the support received for the new 2006 Investment Plan, Program management believes this strategy to be as relevant today as it was when developed in 2003. This applies equally to the Program's mission, focus and approach, as detailed below.

Mission

The Program's mission is to help the CGIAR Centers to:

- Transform the way they work, incorporating new ICT and KM practices to preserve, produce, and improve access to the agricultural global public goods needed by the poor in developing countries; and to
- Be a leading knowledge broker, bringing together all actors in an open, inclusive community for global public goods research for development.

Focus

The Program continues to focus on improving:

- Connectivity;
- Content; and
- Work Culture.

Approach

The Program still employs the following approaches:

- Program delivery through Investment Plan projects and CIO Office activities;
- Consultative planning;
- Nurturing synergies and connections between staff, communities, knowledge and resources;
- Ongoing learning; and
- Gaining economies of scale.

Excellent progress has been achieved with respect to:

- Implementing an efficient and effective Program delivery mechanism (the CIO Office and its governance structure; the ICT-KM Program; projects and Program activities funded through Investment Plans; ongoing M&E;

- Improving access to CGIAR information (CGXchange intranet/extranet platform; group work tools; CGVLibrary);
- Strengthening some important communities of practice (Information Managers; Information Technology Managers; Consortium for Geo-Spatial Information);
- Gaining significant financial savings (see section 2.1); and
- Increasing the application of ongoing learning (see section 3).

System-wide progress has been made towards a shared vision of a seamless CGIAR System. A strong foundation has been created based on improved connectivity, access to collaborative and information sharing tools and platforms, and a work culture that is moving towards greater knowledge sharing and collaboration. Within the CGIAR, the most difficult work has been accomplished with this foundation. Now this work must be consolidated: further applications need to be developed; uses and users need expanding, and training and ICT-KM exposure needs to be broadened to reach more staff. While this is being accomplished, the complementary step of reaching out to partners should be accelerated. This has already begun.

The CGIAR is increasingly being seen as a global leader in ICT-KM-related areas, whether it is concerning the implementation of innovative information access technologies, the serious application of Knowledge Management approaches to improve performance, or the use of data standards in support of more effective scientific research. This is demonstrated through organizations, such as FAO, recognizing the relevant work within the CGIAR and wanting to collaborate both formally and informally.

However, the Program has not been as successful as anticipated in the following areas:

- Increasing connectivity capacity at major remote CGIAR sites
- Improving the application of enterprise security and business continuity plans at the Center level
- Taking advantage of collaborative and innovative approaches to electronic publishing

Following careful review and reflection, these areas are being addressed by extending and revising activities for several projects funded by the 2004 Investment Plan.

The ICT-KM Program Strategy and the 2004 Investment Plan were designed to help get the CGIAR's internal house in order with respect to ICT and KM. From the outset, it was anticipated that additional work would be required in the areas of Content for Development (CGXchange) and extending the influence of KM approaches. The 2006 Investment Plan, approved in early 2007, was designed to do exactly that –

Consolidating Gains to date. One of the biggest challenges faced by the Project Coordinators for the 2004 Investment Plan was the lack of sufficient time to meet the demands of both the project and their "day" job. This has been rectified in the 2006 Investment Plan by ensuring that the Project Coordinators have sufficient time, thereby removing potential time conflicts from the outset.

A smaller but equally important component of the 2006 IP focuses on **Planning for the Future**. Through an intensive consultative process (already begun), the Program will formally review and revise the Strategy to look beyond the internal CGIAR to include partners in improving the access to and utilization of information Global Public Goods.

5.1 Charter of Commitment

Each year, the Program creates a new charter of commitment. It has implemented or is in the process of implementing all of the plans stated in the charter of commitment for 2006/07, which encompasses the following:

- Increasing senior-level management involvement in the Program
- Designing and selecting projects based on learning to date
- Carrying out risk analysis
- Reformulating the Advisory Group
- Elaborating and implementing an explicit communications strategy
- Increasing cross-Center/project linkages
- Ensuring transparency of decision making
- Strengthening CIO Office human resources
- Improving administrative and technical project reporting
- Providing continued support for work culture capacity building
- Working more with research and external partners

Based on the accomplishments of the past year, and taking into consideration on-going learning, and the lessons learned from the projects, the table below outlines the actions the Program intends to take as part of its 2007/08 Charter of Commitment (for the most part these actions represent a continuation of priority actions originating from the previous year's commitments).

Charter of Commitment for 07/08

Area	Commitment
Governance	Design and propose new governance structure
Communications	Implement revised communications strategy described in section 2.3 above
Program Strategy Revision	Implement a transparent and consultative process for revising ICT-KM Program strategy and for developing an investment plan and projects to address information GPG challenges (includes external partners)
Project Reporting Procedures	Finalize and implement standardized project reporting procedures

6. Moving Forward

The Investment Plan projects and plans could not be developed or implemented without the CIO Office. A major part of activities for 2007 will focus on the launching and implementation of the 2006 Investment Plan and reaping the benefits gained from its accomplishments. In addition, the CIO Office will continue to explore partnerships and opportunities for the benefit of Centers and the CGIAR system.

Besides the management of the Investment Plan, plans for 2007 include nurturing communities of practice (in particular, those of the Information and IT Managers), and coordinating joint purchasing and technical coordination for Center-wide savings.

The CIO office will continue to promote and support efforts for intra System-Office collaborations, including:

- Civil Society Consultation
- CG-MTP Analysis Information Program development
- Policy and Good Practice Notes development

The CIO office will continue to identify and build strong partnerships to promote the CGIAR and its Centers while also identifying areas of mutual cooperation, such as building stronger ties with FAO and other international organizations. Indeed, the Program is a member of the steering committee for the e-Agriculture week to be held at FAO in September 2007. This week-long dialogue will focus on the use of information, communication and associated technologies in sustainable agricultural development and food security. The event will also include opportunities to explore Web2 technologies.

iGPG Strategy Development

In early 2005, the Program conducted a two-week online consultation involving over 200 participants with the aim of identifying and compiling an inventory of CGIAR information GPGs (iGPG). This provided the inputs for a new proposal/strategy. Activities in 2007 will build on this work by conducting a comprehensive user needs study; carrying out internal and external consultations about needs and future directions; building partnerships with other critical players; and developing and implementing a process to finalize the information GPG strategy and investment plan.

7. Annexes

7.1 Summaries of Projects' Annual/Final Reports

The following are the Executive Summaries for the various projects supported through the ICT-KM Program in 2006. These summaries are part of the annual reports submitted by the Program Coordinators and include both narrative and financial reports.

Thrust 1: Connectivity

A. Second Level Connectivity - Extended

In the past year, the project has made notable progress in the improvement of connectivity in regional offices, though at a slower and cheaper rate than expected. Major activities included completion of site surveys in the pending sites and implementation in other sites. However, the project faced new challenges that led to delays in implementation at some African sites.

The project has now completed the installation of improved internet connectivity in 10 locations and has committed funds for installations at two more sites. Another four sites have improved Internet connectivity following advice from the project but without requesting funds from the project. Seventeen sites from the original priority list no longer require financial assistance to upgrade their connectivity. These offices were no longer a priority or have been closed by their Centre. As a result of these changes, some Centres requested to change their priority sites and in three cases these requests were accepted.

The audit of the CGIAR offices, carried out at the beginning of the project, has been updated using the information obtained from the site surveys. This has been used to update and add to the information on the map that is available on CGXchange (<https://www.cgxchange.org/>)

The ICT Briefcase development is in its final stages, and we are relying on Centers to provide information to populate this.

The design and implementation of the project has undergone various changes owing to the volatile nature of regional offices. The decision to obtain local individual solutions at each location as opposed to a single tender for satellite connection for the sub-Saharan Africa (SSA) region has proved successful and more locations have been upgraded in the past year. In the SSA region, licensing issues have been the biggest barrier to satellite implementation. Negotiating agreements between Centers with offices in the same location or between Centres and hosting NARS partners to share an installation has been another major barrier to implementation.

The many lessons learned from the installations already carried out are invaluable to all continuing and future implementations.

B. Enterprise Security and Business Continuity – Extended*

Briefly, the goals and objectives of the project are listed below:

- To identify and address the internal and external security exposure of each CGIAR member's information systems
- To develop and implement a CGIAR-wide security architecture
- To develop and implement a CGIAR-wide Business Continuity Plan
- To equip selected CGIAR personnel with the appropriate skills to implement and manage the detailed strategies identified

The overall implementation phases at both pilot and non-pilot sites were as follows:

Phase 1: Project Launch

Orientation of Asian and African regional and non-pilot Center representatives on the project approach, methodology, tools, templates, responsibilities, and schedule was conducted by the SGV consultants at the two pilot Centers, IRRI and ILRI. At non-pilot Centers, the regional resource persons facilitated the kickoff meetings. WorldFish and IWMI opted to have an institution-wide kickoff meeting, while CIFOR and ICRISAT kickoff meetings were limited to the IT group only and attended by the key officers.

Phase 2: Risk Assessment

The risk assessment phase was facilitated by SGV in both pilot Centers using document templates. For the non-pilot Centers, the Asian and African regional resource persons facilitated the risk assessment using a modified framework and document templates.

Information assets (such as software, hardware, information) were identified and assigned the corresponding risks for the Asian pilot Centers. Non-pilot Centers such as CIFOR and ICRISAT were unable to sufficiently document the information assets and their corresponding values in terms of confidentiality, integrity, and availability. WorldFish and IWMI, on the other hand, were able to complete the documentation of their core information assets.

Risk assessments were carried out in the two pilot Centers. The impact of each risk and the likelihood of it happening were assessed for each information asset identified, and the recommended mitigating controls were subsequently selected. Risk treatment plans were developed in light of the risks for each information asset identified and then mitigating controls were identified and subsequently selected. Responses to risks varied from accepting to mitigating and transferring.

Phase 3: Technical Security Assessment

With help from the SGV consultants, both pilot Centers were able to identify their external and internal security exposures, and two major tests were performed: (1) penetration testing from the Internet, intranet, extranet, and remote access for each Center and (2) vulnerability assessment of all mission-critical servers and network devices. Hacker tools such as password cracking, denial of service attacks, packet sniffing, and website defacement were employed by the SGV consultants. The tests were done in four major areas: Internet, remote access service (RAS), extranet, and intranet.

For the non-pilot Centers, the technical security assessments were conducted by the Enterprise Security (ES) regional resource persons. Except for IITA and Bioversity, all non-pilot Centers in both Africa and Asia were able to complete these assessments.

Phase 4: Business Impact Analysis

Building on the results of the risk assessment, asset identification, and valuation performed above, business impact analyses were carried out. Specific tasks in this activity included defining failure scenarios and a business impact analysis survey, taking into consideration impact with respect to the following areas: financial, reputation, contractual and legal, customer service, and environmental. The SGV consultants facilitated the sessions using document templates for both pilot Centers. Except for IWMI and WorldFish, all the other non-pilot Centers in both Asia and Africa were unable to complete the business impact analysis.

Phase 5: Policy, Procedures, and Standards Development

Both IRRI and ILRI received a set of recommended security policies that covered the given domains to meet ISO requirements. This is currently being reviewed and edited under the leadership of ILRI's IT manager.

Phase 6: Implementation Strategy Development

Strategy development ranged from, where possible, removing the threat altogether to minimizing the likelihood of occurrence, and minimizing the effect of occurrence.

*Ongoing ES activities are being proposed by CIP for the Americas region

C. Consortium for Spatial Information (CSI) – Completed

Although all project activities have been initiated and delivered, this project represents an on-going and continuing effort to strengthen the network of geospatial scientists within the CGIAR and to facilitate an active geospatial community of practice.

A successful GeoSpatial Science workshop was held in Nairobi, with representation from all Centers and several other organizations. This event, which also served as the CSI annual meeting, set a strategic vision and outlined a series of initiatives proposed as focal areas for medium- and long-term development and the application of geospatial science within the CGIAR.

The CSI launched its GeoPortal website on 14 February 2004. Since then, over 100,000 unique visitors have visited the site. The components of this rich and growing-valuable international geospatial resource include a Metadata Resource Center, an Intellectual Property Rights Resource Center, a GeoSpatial Links Database, a Portal to GeoSpatial Activities at the CGIAR Centers, and the SRTM Database. The CRU Climate Database forms the second major addition to the GeoSpatial Data Sharing Platform. A third version of the SRTM data for the entire globe is also now available on the CSI website for easy download in a variety of easy to use formats. Since it has been put on-line, it has become the single largest source of downloads within the CGIAR.

In addition, the CSI GeoPortal was called into service in the immediate aftermath of the Asia Tsunami on 26 December 2004 and provided a data dissemination platform for emergency response maps. The CSI developed a Tsunami Remote Sensing Data Sharing Platform, with support from CGNET, for distributing a large amount of previously unavailable data.

A CGIAR metadata inventory was initiated and is now active at all Centers. This activity enables the CGIAR to widely disseminate and share its geospatial Global Public Goods (GPGs) and build a comprehensive seamless GeoSpatial Search Capacity across all Centers. The agreement reached with FAO and SDRN to join together the CGIAR metadata search with FAO, WHO, UNEP, OCHA, and WFP has progressed, with the CGIAR-CSI as a full member of the GeoNetwork Steering Committee, and invited to join the UN Geographic Working Group (UNGIWG).

The GeoNetwork OpenSource metadata search capability is now installed at all Centers, and has been used to develop a unified metadata search portal that serves as the unified search engine for all Centers and initiatives. The Centers now have metadata records for geospatial data accessible from the CGIAR-CSI GeoNetwork node. Currently, more than 15,000 geospatial metadata records originating in the CGIAR (including ICIMOD) are available through the GeoNetwork node, with an additional 5,000 records accessible from the UN and the FAO. In addition, the InterMap application allows non-GIS specialists to access some of this CGIAR geospatial data online and to create custom mapping and geospatial analytic products using a standard web browser.

The most significant results of this project have been the strengthening for the CGIAR-CSI and the CGIAR geospatial community of practice; the development of a vibrant and active network for data sharing and collaboration; and the significant elevation of the CGIAR-CSI's profile both within and outside the CGIAR.

D. Advanced Research Networks - Completed

A year ago, it was expected that advanced research network (ARN) connectivity between IRRI and CIP, the first two Centers connected to such networks in April 2005,

would be established. CIP was connected to Internet2 in September 2005, but it wasn't until April 2006 that the two Centers finally had an Access Grid video conference that used ARN connectivity from end to end.

Twelve months ago, it was not known if other Centers would approach the project for funds or if monies would have to be returned due to a lack of demand for advanced research network connectivity. CIAT was the only other possible candidate at the time. Since then, though, CIAT, then CIMMYT and ICARDA have applied for funds from the project and have established or are in the process of establishing ARN connectivity. It is expected that five CGIAR Centers will use ARN connectivity regularly.

To date, scientists from CIMMYT and IRRI have used the ARN connectivity to further their work. IRRI scientist Dr. Casiana (Nollie) Vera Cruz now has monthly meetings with research collaborators in the US and Mindanao using simultaneous video and teleconferencing. Dr. Vera Cruz's verdict on the meeting: *"It was such a useful meeting and it's great to be able to see people face to face. It makes such a difference. So much better than just using email!"*

The project has met its major objectives. However, the difficulty of establishing ARN connectivity in developing countries resulted in the project running behind schedule.

E. Utilization of Intelligent Systems for Plant Protection – Completed

This project, which focuses on expert systems for plant protection, is a partnership between CLAES, ICARDA, ICRISAT and IRRI. It was approved in December 2004 and officially started on 1 January 2005, although actual activities commenced only in March 2005. The main activities during the period 16 March 2005 to 15 March 2006 related to knowledge acquisition and development of the expert systems and e-learning modules. During phase I of the project, considerable effort was made in the acquisition, collation and formatting of knowledge bases through interactive meetings with experts (pathologists, entomologists, virologists and breeders) from ICARDA, ICRISAT, NARS scientists, and literature surveys.

Knowledge acquisition tools were developed for barley, wheat, and chickpea. Most of the pest management knowledge bases have been acquired for the three crops. Expert system generic task tools, for easy generation of expert systems, and barley e-learning modules were also developed. Utilizing the barley knowledge base, a Barley Plant Protection Expert System beta version was developed using the expert system generic task tools.

Since integration of various components of UISPP is of immense value in decision-making in barley, wheat, and chickpea plant protection, intensive training for end-users is of prime importance. It is hoped that this activity will be taken up in the next phase of the project. The project is on the right track to facilitate effective management of pests and diseases for safer environment, better health and increased profits.

Towards the end of the project's activities a review was carried out by an external consultant, an expert on intelligent information systems. The review was extremely favorable and strongly supported continued efforts for the further development of the project.

F. Desktop Video Conferencing – Completed

Video chat or conversation has become more widely practiced in the last 12 months than ever before, and video conferencing (VC) is increasingly seen as an enterprise collaboration tool. Currently, there are various flavors of VC, ranging from that for the board room, the executive, and the small group, to the “personal” or desktop VC. This project focused on harnessing the power and advantages of desktop VC to enhance collaboration and also made an attempt to assess its effectiveness and value as a tool to support and enhance collaboration among various partner groups. It has suggested plans on how the rapidly emerging CGXchange (the former VRC) collaboration space may include desktop videoconferencing as an integral tool.

The project had the following expected outputs and outcomes:

- Reports and technical documents and the installation and commissioning of desktop VC equipment in ten pilot locations in the CGIAR.
- The capacity built into two CoPs to use VC facilities for more effective collaboration.
- A number of users outside the CoPs using VC to enhance collaboration within the CGIAR and with appropriate partners among ARIs and NARES.
- The lead center and the group of CGIAR-based resource persons with an augmented capacity to develop and operationalize a comprehensive system for using VC for collaboration; and the identification of new means to enhance collaboration on the Challenge Programs.
- A plan to introduce video as an additional tool in the VRC/CGXchange collaboration space.

The project was successful in identifying viable technical options for desktop VC for CGIAR staff. Significant trials with the NARES partners in India and ARI partners elsewhere were carried out, and it emerged that desktop VC can be viable option with at least some of the NARES. The Microsoft firewall used in the CGIAR imposes limitations on the use of VC from desktops in the LAN at the moment and that has limited effective participation of CoPs during the project period. However, this will be overcome with the integration of the Microsoft Live Communications Server (LCS) and client into the System-wide VPN that is under negotiation. This can be an important service that the CGXchange can offer. Alternatives to VPN use (involving IT administration) have been identified and the tool called “Flashmeeting” has been tested extensively and found useful.

Thrust 2: Content for Development

G. Virtual Library Service – Completed, new set of activities started

In 2004, the proposal for a CGIAR Virtual Library Service included the following goal: "to facilitate access to library information within and outside the CGIAR through integrated searches of document-type databases using a common user interface, standard protocols, and easy linking to electronic full text". In the words of a Department for International Development (DFID) report, the Virtual Library Service would "provide a one-stop center for agricultural information, not by creating a massive new central site, but by linking existing services."

This objective has been achieved. The CGVlibrary (as the Virtual Library Service is now called) has been fully operational since June 2006, eighteen months after project approval. Over 160 electronic resources are searchable through the CGVlibrary site,

including fifteen CGIAR Center libraries plus the CGIAR Secretariat catalogs, and linking is possible to more than 4,000 e-journals and other external publications. Staff within the CGIAR and external agricultural researchers are using the CGVlibrary on a daily basis. Between 1 June and 15 October 2006, 94,311 sessions were recorded. Usage for CGIAR catalogs alone has increased from 967 searches in June 2006 to 41,470 searches by mid-October 2006.

The World Summit on the Information Society, held in Tunis in November 2005, recognized that "access to information and sharing and creation of knowledge contributes significantly to strengthening economic, social and cultural development, thus helping all countries to reach the internationally agreed development goals and objectives, including the Millennium Development Goals". The summit also held that the development process can be enhanced by removing barriers to universal, equitable and affordable access to information. This is precisely what the CGVlibrary is doing: removing barriers to information and making publicly available information more accessible to researchers in developing countries.

Clearly, the objective of providing easier and better access to high quality information resources has yet to be fully accomplished. With the CGVlibrary, as with any ongoing service, further work remains to be done in publicizing the service, training new users, developing more thematic groups of resources, including more information resources, and more tightly integrating some resources into the common search. However, the foundation has been laid for providing access to a wide range of agricultural information more efficiently and to a wider audience than ever before possible.

Although the official reporting period concluded in October 2006, it is worth noting that the CGVlibrary Team subsequently received the CGIAR Science Award for Outstanding Scientific Support Team. This award was presented during the CGIAR Annual General Meeting in December 2006 in Washington, DC. Moreover, funding was approved for Phase II of the CGVlibrary project in early 2007.

H. E-Publishing - Extended

Financial highlights

The main expenses during the year were US\$31,000 for the second tranche payment to Konnect Soft for the software development (25% of £56 000) and third-party software licences; US\$9,000 for travel and expenses related to product testing, development and demonstration (Rome, Lima and Washington); and \$5000 paid to CIP towards the Center's expenses in testing the system.

Learning highlights

Several key lessons were learned during the past year. First, lack of human resources (people's time dedicated to the project) prevents progress. Second, when dealing with technical projects like this one, there is a danger of getting wrapped up in the technicalities (especially when faced with many problems to solve) and of overlooking the need for communication among the team and with its constituencies. Third, there is no substitute for face-to-face interaction with team members in getting things done; virtual teams working across time zones are fine in theory but not when the team needs to interact in depth.

Shortcomings and challenges

The major problem faced by the project during the past year was the competing

demands on the time of project team members from their 9-5 jobs. This resulted in less time than necessary being available to dedicate to the project, especially for testing and providing feedback to the software supplier. There were also numerous 'teething troubles' with the software and delays in delivery of the alpha and beta testing versions of the platforms. This hampered testing, and mounting delays and hold-ups diminished the engagement of team members in the project. Some key functionality, in particular the ability to track changes in texts, has still not been developed, despite being expected by late 2006.

I. Virtual Resources Center Infrastructure – Completed, new activities started

At the end of the project's first year, it was three months behind schedule. However, one year later, it was on schedule and meeting its objectives.

The project was considerably realigned during 2005 to accommodate content publishing, branding and marketing of the CGIAR's first Intranet/extranet system. The project team was flexible in accommodating changes and supported CGIAR groups and other Content for Development projects willing to make content available on the platform. The VRC, now called CGXchange, was launched at AGM 2005 in Morocco and has been continuously improved ever since.

In 2006, a no cost extension of three months was approved to improve the work done on some of the more complex activities and tackle new ones as money was still available for the project. The last three months of the project constituted a bridge between the VRCI project and the new project supporting the second phase of the development of CGXchange's infrastructure. Some of the activities undertaken during the last three months were not part of the initial project tasks but were started because of the availability of money.

Leading and managing a project of this magnitude in any enterprise is highly demanding. For the CGIAR, further complexities are the very high communication costs compared to a similar project run in a more formally organized enterprise.

J. Virtual Academy for the Semi-Arid Tropics (VASAT) - Completed

Activities in the past twelve months were designed to fulfill project objectives with a focus on assessing the impact and sustainability of a technology-mediated system for rural information services.

Two reports, one on the impact of the ICT-based rural hub operations on the extension processes in the area in South Central India, and another on the usefulness of the extension linkages mediated by the ICT, were prepared, discussed and made available in the public domain.

The VASAT website was reorganized to allow online learning resources to be accessed granularly rather than in packages. The engagement and dialogue with NARES partners continued vigorously over this period. Two of the CSO partners were invited to present their collaborative work with this project at the CSO-CGIAR Forum during the CGIAR 2006 Annual General Meeting. The framework for generating and maintaining linkages between agricultural research-education and extension has been accepted by the National Agricultural Innovation Project of India as the framework for its own investment in Knowledge Management (KM) in Indian agriculture. The Center Commissioned External Review of ICRISAT's Knowledge Management and Sharing (KMS) program has

advised Center management to develop a more comprehensive VASAT program through second generation trials over more agro-eco-regions.

K. Web Content and Usage Analysis – Extended

This project originally had three components: Content, Marketing of CGXchange, and Evaluation. The first two components were completed in time for the launch of CGXchange in December 2005. The majority of the third component (Evaluation) was to be conducted once CGXchange was launched and operating. Three key outputs of the Evaluation component were expected:

1. A guide for evaluating CGXchange usage, usability and usefulness to help the CGXchange team undertake future evaluations.
2. Options and a guide for evaluating the usage, usability and usefulness of web-based products to be disseminated to the relevant CGIAR communities and used for input for Centers or Projects designing evaluations of their own web-based products, particularly their websites.
3. Partial evaluation of CGXchange.

Outputs 1 and 2 were worked on throughout 2006. The research and collation of these reports were commissioned to CGNet, and both reports have been produced and subsequently reviewed by a small team of people. One section of one report is yet to be satisfactorily completed: the guide for evaluating 'usage' of web-based products. If CGNet is unable to undertake this work, a different consultant will be hired to allow for the completion of the full guide.

When the reports are finalized, they will be distributed and promoted.

A methodology for **Output 3** was originally designed but it was decided that for the full evaluation to be applied, the results would only be useful if the content sections of CGXchange were fully developed and populated with an appropriate level of data/information. As a result, alternative evaluation processes need to be developed that are appropriate for the current stage of CGXchange development.

As a manager for CGXchange is currently being recruited, it was decided to develop the new evaluation methodology in consultation with the new staff member upon appointment. Consequently, the evaluation component of this project is expected to be reinitiated around the middle of 2007.

7.2 Projects Finances

Project Name	Start Date	End Date	Total Budget	Expenditures to Date
Completed Projects				
Consortium for Spatial Information	March 2004	Feb 2007	\$465,210	\$465,210
VASAT	April 2004	Sept 2006	\$363,240	\$363,240
Advanced Research Networks	Aug 2004	May 2006	\$111,600	\$112,217
Desktop Video Conferencing	June 2004	May 2006	\$73,800	73,800
Utilization of Intelligent Information Systems for Plant Protection	Jan 2005	June 2006	\$185,070	185,000
CGVlibrary	Jan 2005	Sept 2006	\$308,142	313,142
Extended Projects*				
Web Content and Usage Analysis	Jan 2005	Dec 2006	\$137,885	106,824
E-Publishing	Mar 2004	Feb 2007	\$226,081	105,708
Enterprise Security and Business Continuity	April 2004	Dec 2006	\$441,300	333,386
Second Level Connectivity	March 2004	Feb 2007	\$725,400	286,019

*Projects have submitted requests for extensions that have yet to be finalized and approved

2006 Program Finances

Activity	Total Budget	Total Expenditure
Coordination	\$66,067	\$56,094
Monitoring and Evaluation	\$35,468	\$32,570
CIO Activities	\$308,000	\$312,229
2006 Investment Plan Advance	\$200,010	\$187,949

7.3 Program-Related Human Resources in 2006

CIO Team

Enrica Porcari
Jenin Assaf
Vanessa Alam
David Balson
Terry Smutylo
Tania Jordan
Sivia Ticconi

Chief Information Officer
Program Officer
Temporary Program Assistant
Program Consultant
M&E Consultant
Technical Coordinator
Technical Consultant

Advisory Group

Ex-Officio (ICT-KM Program Supervisory Body)

Francisco Reifschneider
Emile Frison

Director, CGIAR
Director General, Bioversity International

Members

Carlos Sere	Director General, ILRI
Luz Marina Alvare	Information Management, IFPRI
Anthony Collins	Information Technology, CIP
Dario Valori	Information Technology, Bioversity International
Helen Leitch	Marketing, IWMI
Paul Neate	Publishing, Bioversity International
Robert Zomer	Science, IWMI
Samy Gaiji	Science, Bioversity International
Graham McLaren	Science, IIRRI
Vicki Wilde	System Office, CGIAR
Jan Beniast	Training, ICRAF
Michael Hailu	Communications and Knowledge, CIFOR
Esther Mwangi	CAPRI, IFPRI

2004 Investment Plan Project Coordinators

Thrust 1

Global Advanced Research Networks*	Paul O’Nolan, IIRRI
Second Level Connectivity	Ian Moore, ILRI
Enterprise Security and Business Continuity	Paul O’Nolan IIRRI
Desktop Video Conferencing*	V Balaji, ICRISAT
Consortium for Spatial Information*	Robert Zomer, IWMI
Utilization of Intelligent Information Systems for Plant Protection*	Zaid Abdul Hadi, ICARDA

Thrust 2

Virtual Resources Center Infrastructure*	Dario Valori, Bioversity International
E-Publishing	Paul Neate, Bioversity International
Virtual Library Service*	Luz Marina Alvare, IFPRI
Scientific Data Standards and Exchange: Capacity Development*	Sami Gaiji, Bioversity International
Web Content and Usage Analysis	Joanna Kane-Potaka, Bioversity International
Virtual Academy for the Semi-Arid Tropics*	V Balaji, ICRISAT
On-line Learning Resources*	Jan Beniast, ICRAF

Thrust 3

Knowledge Management and Sharing*	Nathan Russell, CIAT
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* Projects have completed all their activities

2006 Investment Plan Project Leaders

1. CGXchange	TBD (Bioversity International)
2. CGVlibrary	Luz Marina Alvare (IFPRI) and Nancy Walczak (IFPRI)
3. CG-MAP	CIO Office, (Bioversity International)
4. Digital Content for Learning	Thomas Zschocke (CIP) and Jan Beniast (World Agroforestry Center)
5. Knowledge Sharing in Research	Sanjini De Silva (WorldFish) and Nadia Manning (IWMI)
6. Institutional Knowledge Sharing	Simone Staiger (CIAT) and Andrea Caravajal (CIAT)

7.4 ICT-KM Program in the News

Monitoring and evaluation in the CGIAR ICT-KM Program
<http://iaald.blogspot.com/2006/11/monitoring-and-evaluation-in-cgiar-ict.html>

CGIAR to offer agriculture courses through ICTs
<http://www.digitalopportunity.org/article/view/118311/1/1089>

Knowledge Blenders: Toward more Dynamic Meetings on International Agricultural Research
<http://www.egfar.org/egfarW/website/new/newsletters/newsletterarticle?contentId=1581&newsletterId=1522>

Knowledge sharing solutions for CGIAR
<http://www.digitalopportunity.org/article/view/134339/1/8109>

7.5 Acronym List

Acronyms Used

AG	Advisory Group
AGM	Annual General Meeting
ARI	Agricultural Research Institute
ARN	Advanced Research Networks
CAPRI	System-wide Program on Collective Action and Property Rights
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIFOR	Center for International Forestry Research
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
CIO	Chief Information Officer
CLAES	Central Lab. for Agricultural Expert System
CoP	Community of Practice
CSI	Consortium for Spatial Information
FAO	Food and Agriculture Organization
GIS	Geographical Information System
GPG	Global Public Goods
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communications Technology
ICT-KM	Information and Communications Technology and Knowledge Management
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IRRI	International Rice Research Institute
IT	Information Technology
IWMI	International Water Management Institute
KM	Knowledge Management
KM/S	Knowledge Management and Sharing

LAN	Local Area Network
NARES	National Agricultural Research and Extension Systems
NARS	National Agricultural Research System
OLR	On-line Learning Resources
VASAT	Virtual Academy for the Semi Arid Tropics
VC	Video Conferencing
VPN	Virtual Private Network
VRC	Virtual Resources Center
VRCI	Virtual Resources Center Infrastructure
VLS	Virtual Library Service
WorldFish	The WorldFish Center