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IMMEDIATE and MEDIUM TERM  
PROSPECTS for  
COMPUTER MEDIATED DISTANCE EDUCATION  
at CIAT

Report on an 8 day participatory mission

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by  
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# I CIAT, SET FOR COMPUTER MEDIATED DISTANCE EDUCATION

## 1. The electronic revolution at CIAT

CIAT has greatly benefited from the revolution in information and communication technologies (ICT's). Much of the in-house communication is now electronic, as well as most of the exchange with national and overseas dependencies and other local and international counterparts. *Reporting and publishing processes are electronic, many scientific and most administrative databases are electronic, many publications are available on-line in full text or in some electronic meta-form and all projects maintain and update their web based information provision. Presentations are made using electronic tools. Electronic information bulletins (newsletters) and ad hoc messages reach out to networks and user lists of many thousands of professional and technical contacts as well as to rural dwellers and their representative organizations.*

While e-mail services have been around for somewhat longer, the now extensive web based services have sprout up in no more than a handful of years. Relatively slowly as this process may have been in the earlier years, growth has been exponential recently as reflected in virtual visitor numbers to web pages, registered by almost all CIAT dependencies.

## 2. CIAT's potential audiences coming on-line

On the one hand, these virtual visitor numbers reflect CIAT's recent efforts in offering information electronically. On the other hand these numbers are due to the fact that CIAT's users and potential users are now massively coming on-line: thousands of researchers, decision makers and university staff, tens of thousands of development professionals and extensionists, hundreds of thousands of students, NGO staff and farmer representatives. And presumably -in the not too distant future- huge numbers of farmers and other rural dwellers will come on line, be this through local representatives or shared infrastructure (such as tele-centres), be this through more independent means.

## 3. Modes of exchange with distant audiences

As connectivity is on an exponential increase, these new methodologies promise great potential advantages to CIAT. CIAT can reach out to hitherto unattended and potentially larger audiences, *cost of travel and accommodation of students and staff can be reduced or eliminated, the relationship between research staff and target audiences can be enhanced, the networks created through different modes of computer mediated communication can give valuable feedback to the institute and the presentation and sale of its products may benefit from this new outlet.*

CIAT's objective as stated in the "Information and Communication for Rural Communities" (Infor-Com) Project *"Strengthen rural communities' capacity for innovation by better enabling them to obtain, generate and share information and knowledge, with the aid of modern ICT's"*, can be furthered through a host of different activities, such as:

- translating research results into development resources;
- improving access to global information and knowledge;
- fomenting local use of ICT's for rural innovation;
- developing local information and knowledge systems with rural communities.

Several different enhanced communication facilities can stimulate a two-way communication, enabling learning both by distant audiences and by CIAT itself. E-mail based systems (newsletters, forums, discussion lists) and web based systems both allow for bi-directional exchange, be it synchronous (chat in real time) or a-synchronous (leaving messages to be responded later).

Having these characteristics, these different technologies can be used in different modes with the objective to provide distant audiences with services while learning at the same time from the impact these services have at the local level. Production expert systems for instance used in an electronic distance extension service for farmers or their representatives can provide advice on crop management. Local information on yields obtained from the farmers that applied the advice given through the expert system may at the same time be used to improve that system. Likewise, electronic geographic information systems can receive, elaborate and include knowledge from local information systems (such as knowledge on local soil characteristics for example) and provide the communities with the information once it is consolidated.

Newsletters, electronic lists and forums are particularly important instruments in the creation and maintenance of networks of professionals, technicians and other stakeholders with common interests and/or experiences and in the provision and distribution of new information. Web based information systems are essential in providing these communities with permanently available information. Bibliographic information and full texts, multimedia on-line and on CD, product and process information, price and market information, etc., etc. may all form part of an integrated strategy of two-way communication with local communities and distant clients. All these modalities of exchanging knowledge intensive information potentially contribute to outscaling CIAT's services on a scale not seen before, promoting potentially, the prosperity of rural communities in a two-way learning process, in a form, never seen before.

#### 4. The creation of a new type of Distance Education

It is in the context of these many different and mutually enforcing services and communication techniques, that we must place the role of a new form of distance education. The establishment of the World Wide Web in 1994 allowed for the creation and development of this new type of distance education based on the communication through the Internet. The didactic methodologies of this Computer Mediated Distance Education (CMDE) have since been tested and are now coming of age. Well-designed courses allow distant students to learn when and where they want, allowing for continuous and on-the-job training in a bi-directional synchronous or a-synchronous way.

Although the technology perfectly allows for individual learning through courses hosted exclusively on web pages for instance, most scholars and practitioners now agree that -from a didactic point of view- it is particularly attractive to create and maintain learning communities of students with similar interests and/or experiences. Especially in the case of courses directed at adults on professional themes that these adults already work with, these on-line communities contribute greatly to the effectiveness of the training and the interactive learning experience of the distant students. The experience of CMDE the last years moreover shows that a-synchronous communication -in which the students have the time to think about the questions, answers or comment they contribute to the learning community- generally enhances a more profound exchange, then if they would only exchange in real time. A-synchronous communication stimulates thoughtful exchange, leads to so-called "threaded arguments" between students amongst each other and tutors and is particularly effective in the learning of concepts.

Depending on the audience, the theme to be taught and the available teaching material, different modes of Computer Mediated Distance Learning may be relevant. The a-synchronous community learning modality however is one that has proven its effectiveness and will be suitable in many instances, be it as an introduction to other services (virtual extension for instance) or as a parallel tool or as an instrument for its own merits.

#### 5. Different audiences and appropriate technologies

In the past, the counterparts of CIAT's activities and the natural recipients of CIAT's output were researchers at national research institutions and at universities and –possibly to a lesser degree- representatives of different agriculture extension services. Face to face courses given at CIAT headquarters for example in the past generally catered for research staff at a postgraduate level.

In spite of the fact that this tradition continues to be important, CIAT has long ago adopted parallel objectives and embarked on strategies that focus the Institutes' attention on the needs of small farmer communities. This strategic decision was taken against the background of the privatization and reorganization of national and international research and agricultural extension systems and in a period in which national budgets for these services generally continue to be reduced, diminishing the attention given locally to the search on how to improve the livelihood and welfare of rural communities.

The provision of different electronic services by CIAT such as the ones mentioned in earlier paragraphs, and not in the least, the possible adoption of CMDE in particular, is a decision that is certainly not neutral to the question on who should be the audiences of CIAT's services. Although differential levels of connectivity limit today's potential audience of CMDE, the exponential increase in the adoption of the new ICT's will potentially allow CIAT in some years time to reach out far beyond traditional audiences and institutions, including to rural folk in the field, potentially bypassing national extension services.

Many different audiences can benefit from the opportunities of Computer Mediated Distance Education organized from CIAT. Potential audiences include the different categories listed in annex 1.

One important audience is CIAT's own staff both at its headquarters in Palmira as well as the staff at its dependencies in four different Colombian cities, in Central America, in Africa and in Asia. If CIAT were to embark on distance education for its own personnel, it would in fact follow a trend set by many organizations. Many universities for instance attend their own on-campus students increasingly by way of different distance education tools. Outposted CIAT personnel and personnel that have to travel frequently could likewise be attended through distance education.

CIAT's personnel could follow courses provided by outside organizations, but the Human Resource Department at CIAT could also play an active role in this service and stimulate the preparation of courses and put on-line certain relatively popular courses for the Institute's staff. Depending on the contents and the language of these courses, these could eventually be offered to staff at the other Spanish-speaking CGIAR institutions (CIMMYT, CIP) or other Spanish speakers. In the case of English language courses, these could be offered system wide or in fact in a modality open to a more general public.

While it is relatively easy to do needs assessments for internal audiences of distance education, this may be more difficult in the case of external audiences. Establishing the real demand for a certain course, the size and characteristics of the audience and the ability to reach out to this audience are essential questions to be answered before embarking on any training program and this is even more true in the case of distance education, where initial preparatory investments may be relatively high. The answers to these questions will help to choose the modality in which a course may succeed in satisfying the needs of the target audience.

Needs assessments can be made applying many different methodologies. Personal knowledge of CIAT staff or of other specialists on the needs of different stakeholder groups in key poor countries such as Haiti, Honduras, Nicaragua, the Brazilian Northeast, Bolivia and other Andean countries can be used as well as existing joint research on training needs that has resulted in national atlases and other documents on local training needs. Local offices in Africa and Asia as well must play an important role in assessing the needs for certain courses in the regions they cater for. Existing networks of institutions and people that the different departments at CIAT work with are

also an important means of establishing needs and can usually be consulted directly. Additionally, it is also possible to put questionnaires on web pages, distribute them by newsletters or do needs assessments through rural tele-centers, etc.

Considering the more than 15 different potential audiences of distance education mentioned in annex 1, it is natural that thoughts would initially go out to serving relatively traditional clients that are known to have a clear demand for certain courses that CIAT can readily provide, courses for which teaching materials are available (or can be made available at short notice). These target audiences moreover can be expected to have a relatively good access to the Internet and these colleagues can be expected to have few problems with the use of the options that this medium offers. National researchers and different types of development professionals for instance, form such an audience and attending these colleagues by way of CMDE is all the more attractive as the restructuring processes that we mentioned earlier and the diminishing funds have often forced national institutions to reduce their services to these essential intermediaries.

When rather sophisticated audiences such as these are attended that have proven connections to the Internet of a good quality, different tools could potentially be used such as the ones that are being tested by CIAT's Systems Department: streaming videos, real time on-line conferencing, etc. If appropriate to the audience and the object of learning of a particular course, other computer technologies such as power point presentations combined with video and or audio, multi-media CD's and interactive programs on CD or on-line may be useful or more traditional technologies such as audiocassettes and radio (digital and analogue), video, etc. In spite of all these -and other- alternatives in reaching out to distant audiences, printable texts continue to form the most widely used, often easiest and most versatile ways of communicating with learners.

When courses attend people with lesser quality connections, such as colleagues that connect through simple modems and long distance telephone communications, the standard technology used in a CMDE course should allow for these students to work off-line, limiting their on-line time to a minimum and teaching materials should consist in small easily downloadable files or should be sent to them through different means: CD's, mail, etc. Whenever sophisticated technologies are offered, the potential audience will diminish and this is also true if more than one technology is offered in a compulsory way. If more than one technology is offered in a facultative way, we must expect our distant students to opt for the apparently easiest one, leaving the other aside, which may have strong pedagogic consequences.

While the great majority of the existing teaching materials at CIAT are geared to professional and intermediate audiences, quite some material has been designed in the past with farmers themselves in mind (some of these are called "cartillas"). Some of these materials could be reused in courses directed at intermediaries in rural communities that could be taught how to use these materials directly with farmers. As CIAT has developed important experiences with rural tele-centers in recent projects and has direct contacts with "Somos Telecentros" and "Fundación Chasquinet", a very valuable research experiment could be to test whether rural youths and their families could be reached by way of CMDE through rural and agricultural schools or by way of carefully chosen intermediaries at rural tele-centers.

Especially in the case of this particular audience, it would be most important to tailor the use of parallel communication channels such as community and rural radios (scripting messages that have to be interpreted locally rather than offering pre-fabricated materials), public transport, community assemblies, church and school meetings, bulletin boards and the like. Written materials (or even rather pictorials in the form of comic strips as is the case of most of the "cartillas") could be maintained in clear black and white forms and offered over the web so that they could easily be printed, photocopied and distributed locally.

## 6. Potential teaching materials

Many tens or even hundreds of existing CIAT documents and publications can form the basis for teaching materials prepared to serve the special needs of students participating in distance learning supported by the web. Audio tutorials available in CIAT's Library could serve this purpose as well as the many training materials registered by CIAT's Training Department and the "cartillas" mentioned earlier.

Whenever materials are prepared for distance education however, it is essential to bear in mind that although a student may participate in network learning and may be a member of a learning community, he or she is, in last resort, a student that has to learn on his/her own without having face to face contact with tutors and fellow students. The auto-didacticism of this distant student must therefore be supported in the best way possible by learning materials that are well written and illustrated, well organized in clear modules, indicating overall learning objectives, learning objectives of the individual modules, etc. The modules may include exercises or questions that allow the auto-evaluation of the distant student or may contain discussion questions in order to stimulate the group exchange in the learning community, etc.

CIAT has in fact a long standing experience in the preparation of materials that attain the high standards that distant education materials require, a template for the design of course material is readily available and specialized personnel can assist and has offered to assist in the process of the preparation of teaching material by the different departments.

## 7. Specialized CIAT staff

It is no secret that CIAT can count on a versatile staff that includes (former) educators, (former) tutors, communicators, web designers, information specialists, system designers, course designers, course administrators and others that can potentially play essential roles in a distance education that is increasingly characterized by tendencies of Fordist specialization where different tasks in the educational process are executed by different specialists.

## 8. Alternatives for execution of Distance Education

Computer Mediated Distance Education –in the context of other new information services– will allow CIAT to potentially reach out to new and larger audiences well beyond its traditional training audiences. The decision of whether and how to do so will influence the perception the world has of the institute, will strengthen some rather than all of CIAT's core objectives, will reshape its relationships with national counterpart institutions and with local communities.

CMDE is expected to establish itself firmly and successfully in the next few years. CIAT will want to learn by doing distance education in the very short run. It therefore seems advisable that the Institute would do so in collaboration with other institutions that are embarking on this endeavor such as WB, CARE, GFAR, IFAD, IRR and REDCAPA. CIAT could launch a series of tests and pilot courses that could be almost self financing or could be supported by agencies such as IDRC, USAID, NORAD, SIDA, DIFID and the Kellogg Foundation particularly in the case of testing the effectiveness of CMDE in reaching out to rural end users. CIAT's own Strategic Research Fund may be instrumental in drawing scientific conclusions from the different experiments that may be launched, but it also seems advisable that CIAT and REDCAPA prepare and execute a joint project on CMDE that could be co-financed by one of the organizations mentioned.

However this may be, an important number of CIAT (including some IPGRI and CLAYUCA) courses have been identified that can potentially be prepared to be offered within the next year or so. The list of these potential courses can be found in the next chapter II.

This new form of distance education allows for the specialization of tasks. As CIAT has a clear comparative advantage in the creation and registration of new knowledge, it could focus on the preparation of course materials. Through collaborative relations with other institutions, it could outsource the administration of the courses and it could also aim to limit the involvement of its own core staff by stimulating the tutoring of CIAT courses by outsiders. REDCAPA is in that sense a very logical counterpart as it not only has a long-standing experience in the technical and administrative coordination of courses, but also because -through its university member institutions- has a very ample access to specialized potential tutors. This possible collaboration between CIAT and REDCAPA is elaborated upon in chapter III.

Preparation costs of CMDE are relatively high and usually higher than that of face to face courses but the execution cost of this type of courses can in fact be lower than that of the class room courses. As costs of travel and lodging are lower or non-existent, the actual cost of distance courses to individual students and institutions may be very favorable indeed. It is in this context that it may be interesting to consider the possibility of putting these aspects of CIAT's CMDE on a business footing in the medium term. After having experimented the effectiveness and viability of CMDE during 2 or 3 years, CIAT may wish to consider the creation of a local Distance Education partner organization in its Science Park.





## II SHORT TERM PERSPECTIVES FOR COMPUTER MEDIATED DISTANCE EDUCATION COURSES AT CIAT

Below is a list of courses that could tentatively be given by way of Computer Mediated Distance Education or in a combination of this technique with others. Course materials are ready or will be updated to serve not only as individual learning packages (apt for auto-didacticism) but also specifically to serve in distance community learning by a-synchronous communication.

Courses 1 to 4 and 11 through 18 were explicitly analyzed with one or more specialists responsible for their preparation and/or execution. Due to the temporary absence of their creators (or for other temporary reasons), courses 5 to 10 and 19, 20 were discussed only with an education specialist that has collaborated in their preparation. Course 22 was discussed at some depth and has an important potential, but was not thought of as a distance course yet. Courses 23 through 32 are mentioned in different documents and have been given in the "face to face" modality but could not be researched in more depth.

Essential aspects of the courses are registered below such as the existence of a demand and of a target audience, the ability to reach out to this audience, the state of development of the course material and the capacity to bring it up to standard, the availability of professional tutors, the estimated time of preparation, estimated costs involved in the preparation and execution of the course and possible funding of these costs.

The possible impact of course number 1 is described in somewhat more detail; the rest of the courses are presented in sequence of their tentative earliest execution dates. Potentially, a total number of 9 courses are in principle ready to be given as early as September of 2003. One course could be offered in October. Eight courses would in principle be ready in March 2004; another could be scheduled for June 2004 and one more for October 2004. The earliest execution date of the remaining courses was not analyzed although several might be ready for execution in this same time frame.

**1.- Title of the course: "Conservation of Genetic Resources: Improving the Capacity of the Gene Bank" or similar.**

**-Responsible department or institution:** CIAT- Genetic Resource Unit possibly in collaboration with IPGRI

**-Contact person/s:** Daniel Debouck

**-Description:** Over the years, the Genetic Resource Unit at CIAT has developed a number of procedures and relatively easily applicable methods and standards that greatly enhance the capacity and quality of its services, allowing for the improved storage of additional genetic information. Well documented, these methodologies can be shared with colleagues all over the globe that can improve their facilities accordingly and can interchange their contributions in an on-line learning community.

**-Target audience:** Approximately 1300 official gene banks exist around the world as well as possibly more than 500 unofficial ones at universities and non-government institutions, that can potentially benefit from this knowledge. Participation in the course could include managers and coordinators or more technical personnel as pathologists, etc, depending on the focus of (different modules of) the course.

**-Means to reach out to the audience:** An e-mail database of the 1300 institutions apparently exists.

**-State of the material:** In progress. Support to this process and monitoring of the material may be helpful.

**-Language/s:** The documentation will be provided in English and in Spanish. The Spanish version may be the first to be ready by the end of 2003.

**-Length of the course:** Face to face, this type of course can be administered in approximately 4 days, indicating a computer mediated version of approximately 2 months.

**-Resource person/s:** The Unit has 12 professionals that can be involved in the tutoring.

- Time needed for preparation:** Until December 2003.
- Modality of course execution:** On-line or in mixed modality, combining face to face teaching with distance learning.
- Nearest possible initiation date:** March/April 2004.
- Investment needed for course preparation:** This task is already being undertaken.
- Approximate cost of course execution:** Time devoted by tutoring staff + approximately US\$ 100 per student participant.
- Possible funding of course:** Possible funding from the European Union in the context of the new Treaty on Genetic Resources.
- Observations:** A course that potentially has a great impact on gene bank management in the World

**2- Title of the course: "Conservación ex situ de recursos fitogenéticos" (Off site conservation of genetic resources)**

- Responsible department or institution:** IPGRI, CIAT, Universidad Nacional
- Contact person/s:** Margarita Baena (IPGRI), Daniel Debouck
- Description:** (see latest version of manual)
- Target audience:** Personnel at germ plasm banks and national programs for natural resources
- Means to reach out to the audience:** database of e-mail contacts
- State of the material:** ready
- Language/s:** Spanish
- Length of the course:** 3 months
- Resource person/s:** Franco Alirio Vallejo (Universidad Nacional) and Margarita Baena (IPGRI)
- Time needed for preparation:** none
- Modality of course execution:** CMDE
- Nearest possible initiation date:** September 2003
- Investment needed for course preparation:** none
- Approximate cost of course execution:** tutor supplied by University; administrative cost
- Possible funding of course:** Perhaps not necessary
- Observations:** A course, ready to be offered in a four-way collaboration

**3, 4- Title of the course: 3- "Métodos participativos" (Participatory methods) + "Investigación participativa" (participatory research); 4- "Métodos de Seguimiento y Evaluación Participativa" (Participatory Monitoring and Evaluation Methodology).**

- Responsible department or institution:** CIAT-IPRA Institute for Participatory Research in Agriculture (Investigación Participativa)
- Contact person/s:** Carlos Quiroz, Vicente Zapata
- Description:** (see manuals)
- Target audience:** Intermediaries in NGO's, at central and decentralized government and at universities. Students of agricultural economics, agriculture, etc.
- Means to reach out to the audience:** "Atlas" of Honduras and of Nicaragua, list of institutions, research results for consortium in Bolivia, etc.
- State of the material:** Practically ready
- Language/s:** Spanish
- Length of the course:** 3 months
- Resource person/s:** PROINPA and the Universidad de San Simón, Cochabamba, Bolivia and other tutors
- Time needed for preparation:** little to none
- Modality of course execution:** CMDE
- Nearest possible initiation date:** September 2003
- Investment needed for course preparation:** already in process
- Approximate cost of course execution:** Tutoring, monitoring and administration
- Possible funding of course:** To be considered
- Observations:** -

5-10- Title of the course: (6 of the 9 Tools that Help Decision Making for Sustainable Natural Resource Development) 5- "Local Soil Quality Indicators. Participatory Method for Identifying and Classifying Local Soil Quality Indicators at Micro-Watershed Level"; 6- "Analyzing Groups of Interest. Methodology for analyzing Groups of Interest for Collective Management of Natural Resources in Micro-Watersheds"; 7- "Identifying Levels of Well Being. Identifying Levels of Well Being to Construct Local Profiles of Rural Poverty"; 8- "Identifying Market Opportunities. Identifying and Evaluating Market Opportunities for Small Scale Rural Producers (part of course 13 described in this paper)"; 9- "Using Simulation Models. Use of Simulation Models for Ex-ante Evaluation"; 10- "Developing Organizing Processes. Developing Organizing Processes at Local Level for Collective Management of natural Resources"

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-Responsible department or institution: Several different departments at CIAT: Communities and Watersheds, Tropical Soil Biology and Fertility,

-Contact person/s: Vicente Zapata

-Description: all training tools that support decision making at the local level

-Target audience: intermediaries of different type with the community level

-Means to reach out to the audience: varied

-State of the material: recently checked and updated

-Language/s: Spanish

-Length of the course: generally in the order of 3 months

-Resource person/s: varied

-Time needed for preparation: little

-Modality of course execution: CMDE combined in some cases with local encounters

-Nearest possible initiation date: at short notice

-Investment needed for course preparation: very little or none

-Approximate cost of course execution: tutoring and monitoring

-Possible funding of course: varied

11- Title of the course: "Manejo sostenible de la fertilidad del suelo en el cultivo de la yuca" (Sustainable Management of Soil Fertility of Cassava Production)

-Responsible department or institution: CLAYUCA

-Contact person/s: Bernardo Ospina

-Description: This is a course that will combine theoretical analysis of fertility development plans with field tests. The course will introduce soil fertility and ask the participants to study theirs and discuss this in the course. Sowing and harvesting procedures will be monitored during the course as well as the final results of the experiments.

-Target audience: agronomists, entrepreneurs, NGO representatives, agro-industries in LA/C

-Means to reach out to the audience: consolidated database of e-mail contacts

-State of the material: Teaching materials have gone through CIAT editing procedures

-Language/s: Spanish

-Length of the course: The course is meant to last as long as one production cycle, but on campus tutoring of students may be confined to attention given during for instance three separate months, while individual attention is given year round

-Resource person/s: Luis Fernando Cadavid and Nidia Betancourth

-Time needed for preparation: 3-6 months

-Modality of course execution: CMDE with local soil fertility tests and production experiment and on-line interaction on results

-Nearest possible initiation date: October 2003

-Investment needed for course preparation: none

-Approximate cost of course execution: Approximately US\$ 200 per student

-Possible funding of course: Possibly OEA

**-Observations:** A very interesting experiment on combining theoretical community learning with individual recommendations and field tests

**12- Title of the course:** "Curso de biotecnología y bioseguridad para los medios (TV, Radio, Diarios)" (Biotechnology and bio-safety course for the media ( TV, Radio and Newspapers)

**-Responsible department or institution:** CIAT Unidad de Biotecnología

**-Contact person/s:** Zaida Lentini

**-Description:** Supply basic knowledge on the development and use of agricultural biotechnologies in order to understand bio-safety of transgenic plants and derived food.

**-Target audience:** Scientific journalists and possibly (with multimedia CD) a wider audience

**-Means to reach out to the audience:** Direct connection with the Colombian Association of Scientific Journalists and similar connected international institutions

**-State of the material:** Several presentations in Power Point and number of handouts

**-Language/s:** Spanish (and possibly Portuguese)

**-Length of the course:** 6/7 weeks

**-Resource person/s:** Paul Chavarriaga, Joseph Thomé, Hernán Ceballos, Cesar Martínez, Zaida Lentini

**-Time needed for preparation:** 3-5 months

**-Modality of course execution:** CMDE

**-Nearest possible initiation date:** 2004

**-Investment needed for course preparation:** (to be investigated)

**-Approximate cost of course execution:** (internal costs unless Portuguese version)

**-Possible funding of course:** (to be investigated)

**-Observations:** A course with a potentially enormous audience. If it would wish to reach out to this audience, the preparation of a multimedia CD would be highly justified. This CD could then also be used in DE and face to face courses.

*Es parte del 13*

**13- Title of the course:** "Orientación Territorial para el Desarrollo Empresarial Rural: un enfoque para el pequeño productor" (Territorial Orientation for Rural Enterprise Development: the focus of the small farmer)

**-Responsible department or institution:** Rural Agro-enterprise Development Project

**-Contact person/s:** Carlos Felipe Ostertag

**-Description:** (see 4 modules)

**-Target audience:** Representatives of NGO's and of small farmers associations, agents of development, university staff and students

**-Means to reach out to the audience:** Directory of contacts, PRODAR, REDECO, REDCAPA, CIAT-communications

**-State of the material:** nearly ready

**-Language/s:** Spanish

**-Length of the course:** 3-4 months (depending on a decision on moduling)

**-Resource person/s:** Several outside tutors

**-Time needed for preparation:** 6 months

**-Modality of course execution:** CMDE + possible training-action exercises

**-Nearest possible initiation date:** March 2004

**-Investment needed for course preparation:** 2 months

**-Approximate cost of course execution:** Tutoring, monitoring and administration

**-Possible funding of course:** IDRC

**-Observations:** This course can be given in 4 equal modules or in 4 modules of different emphasis or in two separate courses in series

**14- Title of the course:** "Métodos estadísticos aplicados al análisis de datos de suelos en investigación agrícola." (Statistical methods applied to soil analysis in agricultural research)

**-Responsible department or institution:** CIAT and the Universidad del Valle

- Contact person/s:** Myriam Cristina Duque
- Description:** (see existing version of manual)
- Target audience:** non statistician researchers (geologists, biologists, geographers, etc.) of research institutions and universities
- Means to reach out to the audience:** some contacts with related institutions
- State of the material:** Partly elaborated. The course material can be prepared during a sabbatical year of the envisaged tutor
- Language/s:** Spanish
- Length of the course:** 3 months
- Resource person/s:** Eloina Mesa (Universidad del Valle) and possible invitees
- Time needed for preparation:** 4 months from January 2004
- Modality of course execution:** CMDE (Computer Mediated Distance Education) exclusively by Internet
- Nearest possible initiation date:** March/ April 2004
- Investment needed for course preparation:** Contribution from the Universidad del Valle in the form of sabbatical year
- Approximate cost of course execution:** Some tutoring cost + monitoring and administration
- Possible funding of course:** The course may have to be charged to its participants
- Observations:** This is a good example of a possible tripartite collaboration between CIAT (support in design of material and possible partial tutoring), Universidad del Valle (course design and tutoring), and REDCAPA

**15- Title of the course: "Conservación *in situ* de recursos fitogenéticos"** (On site conservation of genetic resources)

**(Info generally as in course number 2)**

-**Resource person/s:** to be defined

-**Observations:** If course number 2 is actually given in the second half of 2003, this course could possibly be offered in the first half of 2004.

**16- Title of the course: "Mapeo Participativo Tridimensional. Metodología y Oportunidades para el Manejo Comunitario de Recursos Naturales en Ambientes de Laderas"** (Three-dimensional Participatory Mapping. Methodology and Opportunities for Community Management of Natural Resources in Hillside Environments)

-**Responsible department or institution:** CIAT Land Use Department

-**Contact person/s:** Germán Ecobar, Thomas Overthur

-**Description:** A course in which intermediaries learn how to assist a community in the preparation of a three-dimensional map of their region. Local and scientific knowledge is combined to make a mould (maqueta), soil information is interpreted and added and geo-references are added to allow decision-making.

-**Target audience:** People that work with these communities and will execute this methodology

-**Means to reach out to the audience:** For instance through the GTZ project on Andean micro watersheds and through other contacts in sub-regions

-**State of the material:** A draft exists

-**Language/s:** Spanish

-**Length of the course:** 2 months

-**Resource person/s:** Germán Escobar, Hermann Usma

-**Time needed for preparation:** 3 months

-**Modality of course execution:** CMDE possibly in combination with face to face encounter

-**Nearest possible initiation date:** March 2004

-**Investment needed for course preparation:** foreseen

-**Approximate cost of course execution:** tutoring and monitoring and administration

-**Possible funding of course:** GTZ

**-Observations:** This is a very creative way of community mapmaking that can be used as a tool in many natural resource and rural development projects at the regional level. It could be applied specifically in a regional GTZ project on Andean watersheds.

**17- Title of the course: "Natural Resource Management and Institutions: the Links between Property Rights, Collective Action and Natural Resource Management"**

**-Responsible department or institution:** CIAT- Impact Assessment/ CAPRI/ Pontificia Universidad Javeriana (Bogotá)

**-Contact person/s:** Nancy Johnson

**-Description:** (see concept note for training program)

**-Target audience:** researchers and technicians of research institutions, universities and NGO's

**-Means to reach out to the audience:** Databases at CAPRI and WWF

**-State of the material:** Material exists but must be partly translated, some local cases have to be added, some preparation for distance learning might be necessary

**-Language/s:** Spanish

**-Length of the course:** 3 months

**-Resource person/s:** Juan Camilo Cardenas (PUJ) and Nancy Johnson

**-Time needed for preparation:** 2 months

**-Modality of course execution:** CMDE

**-Nearest possible initiation date:** March 2004

**-Investment needed for course preparation:** Translation, 2 weeks of joint preparation

**-Approximate cost of course execution:** Tutoring and monitoring and administration

**-Possible funding of course:** CAPRI, IDRC, GTZ, Challenge project

**18- Title of the course: "Uso del banco georeferenciado de datos de suelos (GEOSOL)" (Use of geo-referenced soil data (GEOSOL))**

**-Responsible department or institution:** CIAT Rural Innovation Institute

**-Contact person/s:** Yolanda Rubiano; Natalie Beaulieu; Alfredo Caldas

**-Description:** Teaching the teachers and users of this instrument

**-Target audience:** Personnel of UMATA's, departmental and municipal Secretaries of Agriculture, soil departments of Autonomous Regional Corporations and universities, GTZ in Colombia at first before expanding audience to other regions

**-Means to reach out to the audience:** Database of e-mails of a network of approximately 400 tool users

**-State of the material:** In production

**-Language/s:** Spanish

**-Length of the course:** 4 months

**-Resource person/s:** Yolanda Rubiano

**-Time needed for preparation:** Ready in June/July 2003

**-Modality of course execution:** CMDE with the incorporation of local data

**-Nearest possible initiation date:** March 2004

**-Investment needed for course preparation:** none

**-Approximate cost of course execution:** Tutoring (CIAT time) and monitoring and administration cost

**-Possible funding of course:** CIAT Convenio Colombia

**-Observations:** An interesting experiment of teaching the local use of an electronic tool at the distance including the processing of feed back information from the field at the course center

**19, 20- Title of the course: 19- "Marketing Fundamentals for Agro-enterprises"; 20- "Business (agro-enterprise) theory"**

**(Most information as in 13)**

**-Length of the course:** 2 months → 3-4/10/2004

**-Observations:** These are some of the several different courses that can be offered by the Rural Agro-enterprise Development Project. If course number 13 would be given at the beginning of 2004, these courses could perhaps be offered in the second or third trimesters of 2004

**21- Title of the course: "Uso de la yuca como alimento animal"** (Use of cassava as animal food)

**-Responsible department or institution:** CLAYUCA

(Possible future course (for instance October 2004); much information as in course number 11)

**22- Title of the course: "Formulación y Manejo de Proyectos de Investigación y Desarrollo"** (Formulation and Management of Research and Development Projects)

**-Responsible department or institution:**

**-Contact person/s:** Jorge Saravia

**-Description:** The course deals with *research project formulation*, the financial aspects involved, the administration of the projects and contacts with donor organizations

**-Target audience:** In house research staff

**-Means to reach out to the audience:** Internal announcement

**-Language/s:** Spanish and possibly English

**-Length of the course:** possibly 3 months

**-Resource person/s:** Jorge Saravia, James Mc Millan and Mario Rengifo

**-Time needed for preparation:** (the preparation of this course is not foreseen yet)

**-Modality of course execution:** possibly CMDE

**-Possible funding of course:** Internal- Human Resource Department

**-Observations:** This is a much-demanded in-house course that could be given to CIAT satellite institutions and in fact in the entire CG system.

Other potential distance education course titles are:

**23- "Biodiversity"** (CIAT-Agrobiodiversity and Instituto Von Humboldt)

**24- "Tools for Bioinformatics"** (CIAT-Agro-biodiversity)

**25- "Small scale production of Cratylia seed"** (CIAT-Tropical Forages)

**26- "Small scale production of Pasto Toledo seed"** (CIAT-Tropical Forages)

**27- "CIAL Methodology"** (CIAT-IPRA)

**28- "Introduction Guide on Participatory Technology Evaluation"** (CIAT-IPRA)

**29- "Small Seed Enterprises"** (?)

**30- "Biotechnology for biology students"** (CIAT-Agro-biodiversity)

**31- "Statistical tools SAS"** (Mr. Ramirez)

**32- "Biofortification"** (CIAT-Agrobiodiversity and IFPRI)

**33. "Biological Control"** (CIAT IPM-Integrated Pest Management – Tony Bellotti, Elizabeth Alvarez, George Mahuku )

### III OPPORTUNITIES FOR PRACTICAL COLLABORATION BETWEEN CIAT AND REDCAPA

The preparation, administration and execution of Computer Mediated Distance Education (CMDE) directed at A-synchronous Network Learning requires the management and execution of a series of activities that can be characterized according to the following 15 headings.

This Fordism (specialization of tasks and possible massification of output) allows the allocation of different tasks to different units or institutions. As an institute dedicated to knowledge development, CIAT could concentrate on the design of course materials, could support its preparation or could in fact take charge of that task (task 1 mentioned below). External institutions such as universities could also participate in the preparation of teaching material, supervised by CIAT staff. Although CIAT could dedicate itself to the tutoring of a course (task 11 mentioned below), it could also share this task with another institute or could in fact outsource this task entirely.

As [www.REDCAPA.org.br](http://www.REDCAPA.org.br) has a long-standing experience in the administration, monitoring and practical execution of Computer Mediated Distance Education directed at A-synchronous Network Learning, it could take charge of tasks 2 through 10 and 12 through 15. Although it is usually perceived that the creation and maintenance of the actual electronic virtual campus is the core business of CMDE, experience shows that this task only forms a relatively minor part of the many tasks that require several years of experience to dominate efficiently.

#### 1. Preparation of teaching material.

As distance education always has to cater for auto-didacticism on behalf of the students that participate at a distance, teaching material has to be prepared providing the best stimuli possible to enhance this type of learning. While relatively simple adjustments to existing materials might suffice in some cases, others may require the involvement of complex techniques and teamwork to create material based on multimedia. As Network Learning is pursued and learners will have to follow certain time schedules in order to allow for group exchange, materials have to be structured in clear modules.

#### 2. Preparation of resource staff.

Teachers, tutors, monitors and administrators have to be prepared for attending virtual students that do not necessarily behave as would be expected of class room students. Virtual environments geared to Network Learning have to be carefully created and administered by this staff.

#### 3. Marketing.

As Distance Education potentially caters for new, distant, possibly bigger and probably somewhat different audiences, new types of marketing may be required to reach out to this public. A number of tools that provide the most effective and/or most economic access to this audience must be put in place and adapted over time as new technologies and opportunities arise. REDCAPA basically uses its own electronic information bulletins (10.000 readers), a database on e-mails of professionals in Latin America (50.000) and the contacts with over 50 friendly networks.

#### 4. Construction of information web pages.

Computer mediated Distance Education is usually announced through web pages that contain all the information on the course contents, the CV's of the resource personnel, the course procedures and requirements, in short, all the information for the student to take best advantage of the course.

#### 5. Student registration.

The on-line registration of students with specially prepared forms allows for a number of advantages: The procedure may be used as a first test of the candidate's access to web-facilities and his ability to prepare and send a simple message in that environment. The form itself requires the students agreement with the procedures of the distance course. It may also reveal valuable information on the student that enhances the selection process and can provide the distant resource staff (and possibly fellow students) with valuable information on the future participant, his academic and professional background and his particular experience and expectations with respect to the course. Important for course (computing) system administrators is also that the form can

check on the equipment that the student has available and the type and quality of his/her connection to the Internet. In the case for instance in which he/she uses a modem and long distance telephone calls, he/she can be explained how to work off-line, most of the time.

6. Selection of students.

In order for Network Learning to be successful, students must be able to communicate between themselves. This communication depends on an array of factors but is greatly enhanced when students have joint interests, experiences or visions and when their levels of knowledge are not too diverse. A well-tuned selection process that may involve different actors must cater for this.

7. Reception of payments.

As new audiences in different countries may be attended and students may not physically show up at the administration office, new payment arrangements must be put in place involving international bank accounts, bank accounts in different countries, credit card facilities, etc. Even if courses are free of charge, it may be advisable –with a view to enhancing commitment- to charge a limited fee, which may be returned to the student, once he/she has completed the course satisfactorily.

8. Administrative information to students.

Distant students usually require much more written feedback information on the course they are about to follow or have already embarked upon than classroom students. They may also have to be guided through the installation of certain software, may have to be provided with particular courseware and have to be instructed with respect to the functioning of the on-line environment in which they will act. Students are provided with identification numbers and passwords to have access to (parts of) the virtual environment. Manuals for the use of the virtual campus have to be provided and students have to be taught how to use the system and have to be assisted especially during their initial experiences with the new medium. Help menus and answers to frequently asked questions have to be provided to them.

9. Design of the virtual campus.

The virtual campus has to be designed and set up, including the academic platform with the "classroom", the virtual library and possible regional and thematic groups, areas for debate and chats and possibly a joint calendar. Additional features may include a "cafeteria" and/or an exclusive conference for resource staff, etc.

10. Technical support on and off campus.

Once students are functioning on-line, they are given technical support, instructions, practical advice and they are provided with stimuli or may be called/ written in case of absence or delays.

11. On-line tutoring.

The academic tutoring consists of a host of tasks ranging from providing the course program and time table to giving stimuli to the learning network, correcting exercises, answering individual questions and preparing and executing exams.

12. Academic monitoring.

Especially in the case of inexperienced tutors, academic monitoring must be provided in order to guide the tutor/s in the construction of the Learning Network Environment and the attendance of student participants. Advice is provided in the case of both insufficient as well as excessive academic exchange in this environment.

13. Examination.

Support is provided at the time of (final) examination of the students. Exams can be taken presentially (face to face) or on-line, in real time or allowing the students to hand in their exams after a certain period. Special examination conferences can be provided on virtual campus.

14. Certification.

Academic or *ad hoc* certificates have to be prepared and forwarded to the students, be this by ordinary or express/ private mail or via the Internet.

**15. Student administration.**

The full administration of students, courses taken, notes and certificates received must be kept for as long as necessary, if possible both in printed and electronic form. Distance Education can be administered by fully automated systems that include linked-up alumni databases etc. or can be run in a more manual way.

## ANNEX 1: POTENTIAL AUDIENCES FOR COMPUTER MEDIATED DISTANCE EDUCATION BY CIAT

### 1. Decision Makers & Academics

- Policy Makers
- Professors
- Postgraduates
- Graduates
- Students

### 2. Rural Community audiences

*Development Professionals*

- Development Professionals
- Technology Intermediaries
- Technicians
- Extensionists
- School Teachers
- Rural Youth
- Farmer

### 3. Others

- Journalists
- Seed Producers
- Gene Bank Managers
- CIAT Staff

ANNEX 2: PERSONS INTERVIEWED OR MET IN DECEMBER 2002 AND APRIL 2003

*In december 2002:*

Alfredo Caldas  
Carlos Felipe Ostertag  
Carlos Meneses  
Edith Hesse  
Eduardo Figueroa  
Hernando Riveros, (IICA-PRODAR)  
Jacqueline Ashby  
Jhon Jairo Hurtado  
Joachim Voss  
José Ignacio Sanz  
María Cecilia Roa  
Mariano Mejía  
Mark Lundy  
Nathan Russell  
Rafael Posada  
Rupert Best  
Vicente Zapata

*In April 2003:*

Alfredo Caldas  
Bernardo Ospina  
Carlos Felipe Ostertag  
Carlos Meneses  
Carolina Maya  
Daniel Debouck  
Edith Hesse  
Eduardo Figueroa  
Eloina Mesa (Universidad del Valle)  
Germán Escobar  
Gustavo Peralta  
James McMillan  
Jacqueline Ashby  
Jenny Correa  
Jhon Jairo Hurtado  
Joachim Voss  
Joseph Tohme  
Lee Calvert  
Liliana Mosquera  
Liliana Rojas  
Marcela Quintero  
Margarita Baena (IPGRI)  
Mariano Mejía  
Myriam Cristina Duque  
Mercedes Mejía  
Michael Peters  
Nancy Johnson  
Nathan Russell  
Ruben Dario Estrada  
Silvia Elena Castaño  
Tania Jordan  
Vicente Zapata  
Yolanda Rubiano  
Zaida Lentini

ANNEX 3: PARTICIPANTS IN INTRODUCTORY COURSE ON COMPUTER MEDIATED  
DISTANCE EDUCATION, April, 1 and 2, 2003

Alvaro Alván  
Alfredo Caldas  
Anderson Medina  
Aura Villa  
Beatriz Arenas  
Belisario Hincapie  
Carlos Felipe Ostertag  
Carlos Meneses  
Carlos Saa  
Daisy Acosta  
Dimary Libreros  
Dorian Colunge  
Edith Hesse  
Eduardo Figueroa  
German Escobar  
Ilba Rico  
Jenny Correa  
Johanna Aristizabal  
John Jairo Hurtado  
~~Jorge Luis Gil~~  
Juan Esteban Montoya  
Liliana Mosquera  
Liliana Rojas  
Luis Fernando Cruz  
Mariano Mejia  
Mercedes Mejia  
Miguel Dmena  
Monica Triana  
Nathan Russell  
Nidia Betancourth  
Olga Paz  
Oscar Escobar  
Ovidio Munoz  
Rafael Meneses  
Reiner Solarte  
Silvia Elena Castano  
Silvia Pérez  
Simone Staiger  
Sylvia Cadena  
Vicente Zapata  
William Diaz  
Yolanda Rubiano

## ANNEX 4: INTRODUCTORY COURSE OUTLINE

### Curso Introductorio sobre Educación a Distancia mediada por Computación para el CIAT por Wessel Eykman, REDCAPA

**Objetivo:** El presente Curso tiene como objetivo introducir las características típicas de la Educación a Distancia (EaD), con particular énfasis en aquella capacitación asistida por comunicación computacional, principalmente asincrónica. Luego de tratar ventajas y desventajas de la EaD en general y efectos que la utilización de diferentes metodologías y tecnologías puedan tener, se tratan los conceptos esenciales de los cursos mediados por computación y los aspectos prácticos que todo curso a través de ese medio tiene que tomar en cuenta.

**Público:** El Curso está destinado a interesados que quieren conocer los aspectos básicos de la EaD mediada por computación y que juegan o esperan jugar algún papel en este tipo de educación a futuro, sea este de guionista (diseñador y/o preparador de material didáctico), diseñador de ambiente virtual, profesor, tutor, monitor, administrador técnico computacional, administrador académico/ financiero o coordinador. Aunque favorece el aprendizaje, no es preciso tener conocimiento previo de la EaD. Un conocimiento básico del manejo de la computadora es importante.

#### **Programa tentativo:**

El Curso tiene una duración de 16 horas y está dividido en 8 módulos de aproximadamente 2 horas cada uno.

#### Módulo 1: "Porqué este Curso para el CIAT?"

- ◆ Introducción al Curso y a los participantes
- ◆ Uso de la EaD para el CIAT

Se explican los objetivos del Curso y el programa. Los participantes se presentan explicitando su experiencia con la EaD y sus expectativas del uso de la EaD en su trabajo indicando los posibles públicos de eventuales futuros cursos.

Se hace una breve visita al Campus Virtual del Curso y a los documentos de consulta disponibles para el Curso. Se hace una breve práctica de un intercambio en intra-red.

#### Módulo 2: "El espacio de la EaD por Computación"

- ◆ Porqué y para quién EaD?
- ◆ Ventajas y desventajas de la EaD
- ◆ Ventajas y desventajas de diferentes instrumentos y tecnologías

Se describe la reciente historia de la EaD y su función en la vida moderna. Se trata de los públicos típicos de la EaD. Se indican limitantes de la EaD y ventajas sobre la capacitación presencial y las formas combinadas. Se describen diferentes formas y niveles de EaD. Se

mencionan instrumentos y tecnologías utilizados (TV, radio, video, CD's (interactivos), e-mail, www, intra-redes, etc.) y sus efectos sobre la EaD. Tecnologías sincrónicas y asincrónicas (con comunicación simultánea o diferida), uni-direccional y bi-direccional, etc.

### Módulo 3: "Características de nuestros estudiantes"

- ◆ Públicos, mercados, inscripción y selección de participantes y estudiantes virtuales

Se hace tipologías de diferentes públicos en relación a diferentes ofertas de capacitación. Se trata la ubicación y el alcance de los públicos libres y cautivos. Se discute la función de la selección de participantes en un curso. Se tratan las expectativas de los estudiantes y su comportamiento en ámbitos virtuales.

### Módulo 4: "Virtualidad, auto-didactismo y comunidades de aprendizaje"

- ◆ Auto-aprendizaje asistido, aprendizaje en red, comunidades de aprendizaje

Se tratan los efectos del ámbito virtual, el autodidactismo y el aprendizaje en red sobre la organización y estructuración de los cursos virtuales.

### Módulo 5: "Profesores tutores y sus materiales"

- ◆ Profesores virtuales y materiales adecuadas para la EaD

Continuación del módulo 4 con énfasis en el papel del profesor-tutor y la adecuación de materiales didácticos.

### Módulo 6: "Dinámica y resultados de los Cursos"

- ◆ Estímulos, trabajos en grupo, chat, monitoreo, (auto-)evaluación, examinación y certificación, legislación

Se tratan algunos instrumentos sencillos para optimizar el rendimiento de los cursos y su certificación.

### Módulo 7: "El entorno técnico-administrativo"

- ◆ Campus Virtual
- ◆ First Class
- ◆ Cursillo introductorio
- ◆ Apoyo técnico y administrativo
- ◆ Aspectos financieros

A través de un ejemplo práctico, se ven algunas facilidades de los Campus Virtuales y de la plataforma educativa First Class, un ejemplo de un cursillo de introducción utilizado por REDCAPA y el apoyo técnico y administrativo que requieren estos ambientes.

Se ven aspectos financieros del montaje de sistemas de Educación a Distancia mediada por computación.

### Módulo 8: "Cierre"

- ◆ Conclusiones y Evaluación del Curso

Finalización del módulo 7. Recomendaciones para mejorar el Curso.  
Cierre del Curso.