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US Agency For Intl. Development
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Reform Design and Implementation

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الوكالة الأمريكية للتنمية الدولية
مشروع إصلاح السياسات الزراعية
وحدة تصميم وتنفيذ السياسات

Ministry of Agriculture and Land Reclamation

AGRICULTURE POLICY REFORM PROGRAM

Reform Design and Implementation Unit (RDI)

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RDI REPORTS



APRP

Reform Design and Implementation Unit

*Development Alternatives Inc. Group: Office for Studies & Finance, National Consulting
Firm Development Associates, Cargill Technical Services, The Services Group, Training
Resources Group, Purdue Universities, University of Maryland*

Report No. 152

*Progress in the Design of the
National Center for Plant Genetic
Resources and Gene Bank*

By

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with

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Background

The Ministry of Agriculture and Land Reclamation (MALR) is committed to the development and implementation of a National Plant Genetic Resources Program consisting of four elements:

- A National Gene Bank for the long-term preservation of plant genetic materials,
- A National Database for Plant Genetic Materials,
- Working Collections throughout Egypt with the responsibility of acquisition, sample increase, germplasm evaluation, short-term preservation and sample distribution,
- Coordination of International Exchange of Plant Materials and associated quarantine issues.

The Program will be headquartered in a facility to be built and called the National Center for Plant Genetic Resources. The Ministry of Agriculture has allocated land and budget for its construction:

In December 2000, the Director of the National Plant Genetic Resources Program – Dr. A. Abou-Zeid – requested assistance from RDI/APRP to design the National Center. RDI provided the services of Dr. Phil Stanwood, who is an expert in gene bank issues. Dr. Stanwood, working in collaboration with Ministry official and RDI staff, completed a full Conceptual Design for the Center (RDI Report #129). The Design covered issues of policy, flow of plant genetic materials, layout for the Center, and room schedules organized by functional groups.

The Ministry approved the Conceptual Design and used it as the basis for a call for bids from qualified local firms to undertake a full architectural and engineering (A&E) design. Through this process, in the Spring of 2001, the Ibrahim El-Hayawan Consulting Group was selected and contracted to undertake this A&E design work and specifications for the facility.

The Ministry requested that RDI arrange for a follow-up trip by Dr. Stanwood to review the preliminary work of the A&E firm, assist in pushing this work forward and down the right path, and review policy issues related to the National Plant Genetic Resources Program of the Ministry.

Plan Development – Current Status

Land for the Center has been allocated (approximately 15,000 square meters) at the Agricultural Research Center (ARC) in Giza. The facility itself will be approximately 4,100 square meters and will house the Director General, National Genebank, National

Germplasm Database, National Coordinator of Working Collections, and an International Exchange Office as well as related administrative activities.

The first set of architectural plans were prepared and sent to Dr. Stanwood in August 2001. Dr. Stanwood reviewed these plans and sent technical comments back to the A&E firm from his office in California. The major points of concern were:

- 1) Security of the Center,
- 2) Potential problems of a high water table;
- 3) Potential problems of local ground flooding
- 4) Location of individual laboratories, offices and vaults for sample storage within the facility; and
- 5) Access to the Center from public streets and associated services.

Further work on the project was delayed until October 2001 due to scheduling problems and international events in September.

In October 2001, Dr. Stanwood returned to Cairo to interact with MALR and the A&E firm to finalize the architectural plans and site layout. There was some doubt as to the actual site selected for the Center. Some stakeholders felt that the selected site at the Agricultural Research Center in Giza was less than ideal due to physical and political concerns. So, the first part of the consultation was directed at settling this issue. Upon the insistence of RDI staff person Lawrence Kent, a meeting was organized in the office of the President of the ARC to try to settle this matter. During this meeting, attended by the Director of the National Program, the Director of the ARC, and the Director of the Agricultural Genetic Engineering Institute, it was decided that the Center would be located at the ARC site in Giza. To satisfy security and future expansion problems an additional amount of land was provided adjacent to the original site, with a pledge of additional space as needed.

Once the site issue had been settled, Dr. Stanwood and Dr. Abu-Zeid began working with the A&E firm to finalize architectural details for the Center. Another set of plans was produced and again reviewed by Dr. Stanwood and Dr. Abu-Zeid with the A&E firm. Attached are the resulting drawings of those meetings. The Center will have (areas are approximate):

- Offices of the Director General : 655 m²
- Genebank Offices, Laboratories and Support Areas : 1,240 m²
- Long-term Storage Vaults : 590 m²
- Database Management Unit : 615 m²
- Administrative Unit : 510 m²
- Coordinator for Working Field Collections : 500 m²
- Other Support Facilities : 800 m²

Total – Approximately 5,000 m²

The contract with the A&E firm was extended through January 2002 to allow completion of detailed engineering plans for HVAC, electrical, water, sewer, structural, phone system, LAN, fire and personal safety systems, security systems, cold vault systems, liquid nitrogen preservation systems and specialized laboratory and support. This output should be available for review by mid-January 2002. The development of these detailed plans and specifications is a critical phase of the development process. There are a large number of items that are specific to a genebank and are out of the experience window of the A&E firm. Consequently, significant consulting input will be needed to address those issues.

MALR is satisfied with the proposed plans and organization developed to date for the Center. Once the detailed plans and specifications have been completed and reviewed by MALR and appropriate consultants, MALR will move into the bidding and construction phase of the Center. It is estimated that phase of the project should start around the spring of 2002.

Future Support Activities

The success of the National Plant Germplasm System – Egypt, will depending on:

- Completion of A&E plans and construction of the National Center.
- Development of a National Plant Germplasm Database.
- Establishing a system and coordination of 'local' working crop specific germplasm collections throughout Egypt.
- Establishing agreements of international exchange of plant germplasm with appropriate international organization and individual countries throughout the world.
- Developing policies and guidelines and a system of review for the collection, evaluation, increase, preservation and distribution/exchange of Egyptian plant germplasm.

Over the next 3 months, the highest priority is the completion of the A&E plans and specification for the National Center. APRP/RDI can play an important role in this phase by providing appropriate consultant activity to assist MALR and the A&E firm in developing the final details of the plan and assisting in the final review of plans and specifications.

Concurrently, APRP/RDI should provide assistance and encouragement in the development of national and international policies regarding the import, export, utilization, germplasm transfer agreements and associated legal and international policies on the exchange and utilization of these materials. MALR needs to develop an official national policy concerning these matters.

Contacts

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Architect Ahmed Alasharfy, Ibrahim El-Hayawan Consulting Group. 012-330-2803.

Dr. Fawzy Naieem Mahrous, President, Agricultural Research Center (ARC), MALR

Dr. Magdy Madkour, Director, Agricultural Genetic Engineering Research Institute (AGERI), ARC, Giza, Cairo.

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Annexes

Annex 1: Terms of Reference

Annex 2: Meeting Notes

Annex 3: Update from Consulting Group

Annex 4: Draft Architectural Plans

TDI GROUP: Agricultural Sector Support Services
STATUS: ● Draft ○ Edited ○ Final
ACTIVITY: 6.4.33. Gene Bank Development

TOR

**Agricultural Policy Reform Project
REFORM DESIGN AND IMPLEMENTATION UNIT**

Proposed Terms of Reference

**Support for Development of National Plant Genetic Resources Center (Gene Bank)
Phase II - Detailed Design**

Justification for these terms of reference:

In order to ensure the conservation and preservation of indigenous plant genetic resources and maintain a large collection of international plant genetic resources for use by plant breeders and other scientists, the Government of Egypt has decided to establish a National Plant Genetic Resources Center or Gene Bank.

The MALR has shown a very real commitment to the creation of the Gene Bank. His Excellency the Minister has allocated LE 9 million of projectized funds from APRP to fund the construction and equipment of this Center.

The Gene Bank will store seed and planting materials of indigenous plants to reduce the possibility that these resources could be lost to future generations. The collection will include wild plant and "land races" of crops, developed through the selection activities of farmers. The Gene Bank will preserve their availability for future plant breeding work, biotechnology development, or other scientific or commercial applications.

The Gene Bank also will maintain a large collection of international plant genetic resources. Many of these are already in individual collections in Egypt, but are not centrally organized or properly preserved. The new Gene Bank will gather samples of these genetic resources, expand the collection through additional "accessions," and ensure both their long-term storage and permanent availability to breeders in both the public, academic, and private sectors.

The Gene Bank will be at the center of Egypt's evolving policy for management of plant genetic resources. This policy, in accordance with the Convention on Bio-Diversity (CBD), asserts Egypt's sovereignty over its indigenous plant genetic resources, but also endorses the concept of "shared access" for the purpose of agriculture (breeding and biotechnology). Egypt continues to participate in the International Undertaking on Plant Genetic Resources organized by the FAO where the terms of access are being negotiated. Establishment of the Gene Bank will help Egypt both identify and collect its plant genetic resources, manage these resources optimally, and leverage improved access to international germplasm.

Establishment of the Gene Bank will facilitate the work of ARC researchers, particularly plant breeders and genetic engineers, to develop new agricultural technologies and crop varieties for commercialization. In this way, support for the Gene Bank relates to the proposed APRP Tranche 5 Benchmark on Agricultural Technology Commercialization. This Benchmark establishes both the incentive structure and commercialization process needed to motivate researchers to use the resources of the Gene Bank to develop technologies of practical use to farmers. A Gene Bank policy of open access for private breeders also will help private seed companies to expand their private variety development efforts. In this way, the Gene Bank effort is consistent with the APRP Tranche 4 Benchmark that seeks to "encourage the development of improved private sector capacities for producing [hybrid seed]" (D.5).

RDI's involvement with the Egyptian Gene Bank design in October 2000 with a request from Dr. Magdy Madkour of the Agricultural Genetic Engineering Institute (AGERI) of the ARC, who, with the backing of the President of the ARC and the Minister, was spearheading efforts to build the Gene Bank. Dr. Madkour requested support for the conceptual design of the Gene Bank. RDI supplied an expert – Dr. Phillip Stanwood – from the U.S. Genebank in Fort Collins, Colorado (National Long-term Seed Storage Facility) who worked with MALR officials to complete a Conceptual Design in December 2000 (RDI Report #129). The Conceptual Design report addressed policy and management issues and suggested that an Architectural and Engineering (A&E) firm be contracted to make a detailed design based on the RDI work.

In the Spring of 2001, MALR conducted a tender to select and hire an A&E firm to develop construction plans, specifications and cost estimates. A contract was signed in May and work will begin shortly. Dr. Magdy Madkour has requested that RDI arrange for Dr. Stanwood to provide guidance to this A&E firm to ensure that the work aligns with the conceptual design and management policies specified in RDI Report #129.

RDI, in dialogue with Dr. Stanwood and Dr. Madkour, proposes two short support trips at the beginning and at the 75% completion point in the A&E work. A letter from Dr. Madkour formulating this request for support, endorsed by Dr. Saad Nassar, is being sent separately.

Objective of this short term assignment:

1. To ensure that the design of the Gene Bank is conducted in conformity with the Conceptual Design and Plant Genetic Resources Management policy of the Ministry of Agriculture.
2. To provide assistance to ensure that the A&E design is technically sound and feasible.

Outputs:

1. **Initial orientation briefing** to the A&E firm to orient staff on plant germplasm, the role of the "Center" in relation to agricultural policy, management policies and operations, handling plant and vegetative materials for preservation (including principles of cryopreservation). All of these should be placed in the framework of how it impacts building architecture and design.
2. **A series of one-on-one Q&A meetings** with specific design teams to discuss specific topics. The team meetings would be for architecture, heating and air conditioning, electrical, safety and security, communication systems, refrigerated and cryogenic storage vault systems. It is very important that the A&E firm has a good understanding of all of this in terms of how it impacts germplasm preservation and handling. The better they are informed, the better the design.
3. **Review and consultation to the A&E firm during the design** as needed to ensure compatibility with the national plant genetic resources management policy.
4. **On-site Review of the Plans and Specifications at the 75% completion stage of the A&E design.** This should be a major review and milestone by the "Users" of the A&E plans and specifications. Any significant conflicts in basic design and intended "Center" function would have to be resolved by this time. The review would formalize the process.

Timing:

June 24 - July 13, 2001 (first trip)

Second trip six months later : December 1-17, 2001

Team and resources:

- RDI proposes as team leader: Phillip Stanwood, Ph.D., a former manager of a germplasm preservation

unit and international consultant in germplasm preservation and policy. Last year, Dr. Stanwood developed the Conceptual Design that will guide the A&E design in Egypt. Trip one will require 19 days LOE. Trip two will require 19 days LOE. Interim support will require 10 days LOE. Total LOE is 48 days, including travel.

- Lawrence Kent and Mohammed Zaki Gomaa of RDI will provide management and policy analysis support.
- Dr. Magdy Makour of AGERI and Dr. Abou Zeid (Director of National Plant Genetics Resources Program, MALR) will provide support and supervision.

RDI Unit Responsibility:

Agricultural Sector Support Services

Tasks:

See "outputs" above. This will require close and regular contact with the selected A&E firm, designated MALR officials, and RDI policy analysts to ensure a high quality and appropriate design.

MEETING/INTERVIEW NOTES

Dr. Fawzy Nayeem
ARC President

ARC
10/11/2001

Dr. Magdy Madkour, Dr. Abou Zeid, Dr. Phil Stanwood, Mr. Lawrence Kent

Purpose: Site selection finalization meeting

Meeting:

Dr. Abou Zeid (Director of National Plant Genetic Resources Unit) and Dr. Stanwood (Gene Bank Consultant) expressed two concerns over the site pre-selected in the SW corner of the ARC compound:

- Security -- location near wall on busy Sudan street makes security difficult
- Inadequate room for eventual expansion, due to the encircling of the site by other buildings/walls.

Dr. Abou Zeid mentioned three alternative sites within the ARC compound. Each one had drawbacks, with Dr. Nayeem expressing particular concern about building on "agriculturally zoned" land controlled by the FCRI.

Dr. Abou Zeid and Dr. Stanwood said that they personally believed a site outside the ARC, such as one in Six October city, would be preferable. Dr. Nayeem expressed his preliminary agreement; however, the discussion shifted when Dr. Madkour arrived. Dr. Madkour pointed out the following:

- Demolition and building permits have already been obtained from the Governorate of Giza for the site at the SW corner.
- The gene bank building can be rotated to move its main entrance away from the ARC perimeter wall, thereby reducing security risks.
- The Southernmost area includes an additional 47 by 100 meter area that can be used for expansion or lengthening of the building.
- Getting permission and permits for alternative sites will take years; we want to move faster.
- The ARC site offers more reliable electrical and water services than alternative sites.

Dr. Nayeem agreed with Dr. Madkour -- the SW corner site is best. The building can be rotated to move its main entrance away from the perimeter wall on Sudan street. This may reduce the visibility of this prestigious building, however, prestige is less important than security. Besides, the people who need to be impressed by the building will be specific visitors, not the general public driving by.

Dr. Abou Zeid expressed continued concerns about room for expansion, particularly if the gene bank is to play an Arab regional role.

Dr. Nayeem responded by saying that additional land for future expansion lies to the East of the SW corner, i.e. the area of land directly South of the FCRI, where sugarcane is currently grown. Recently plans to build greenhouses in this area have been canceled -- the area can be set aside for future expansion of the gene bank.

Dr. Abou Zeid and Dr. Stanwood said that they did not think that the site in the SW corner was ideal, however, they would accept and respect the decision of Dr.

Nayeem and Dr. Madkour to design the gene bank for this site, taking into account:

- the need to rotate the building to move its main entrance away from Sudan Street
- the need to reserve land to the East for future expansion.

The team of Dr. Abou Zeid and Stanwood will work over the coming weeks with the Engineers and Architects of El-Hayawan Consulting Firm to improve the design for this site.

بسم الله الرحمن الرحيم

وزارة الزراعة
مركز البحوث الزراعية
الموضوع : بنك الجينات القومي
(عقد الأعمال الإستشارية)

القاهرة في ١٥ / ١٠ / ٢٠٠١
صا ١٥٨ / ١٠ / ٢٠٠١

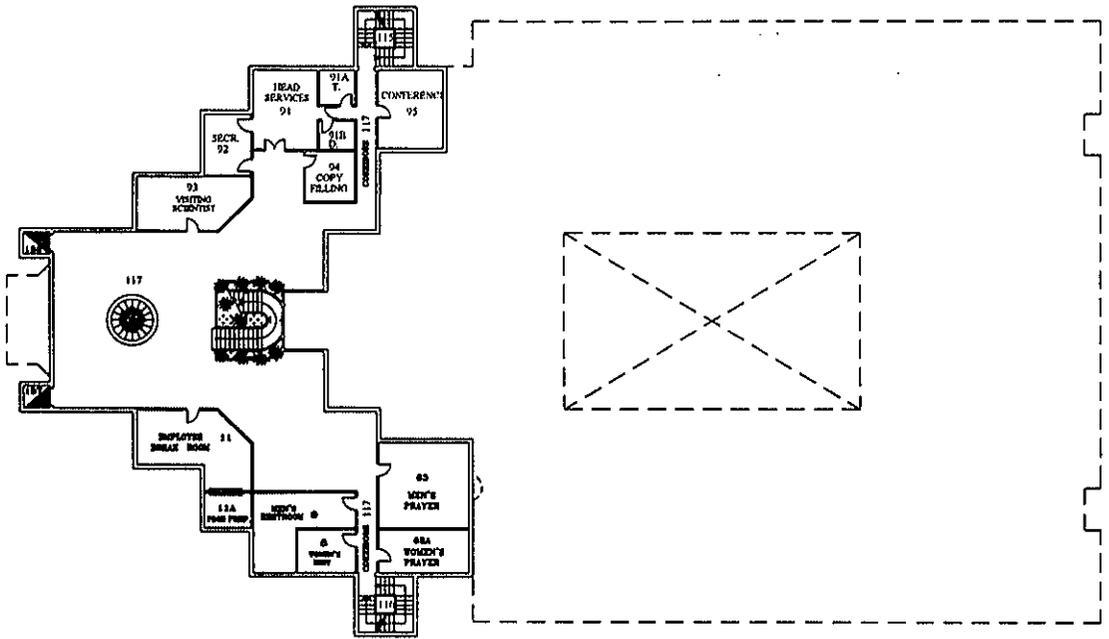
السيد الدكتور / عبد المنعم أبو زيد
مدير البرنامج القومي للمصادر الوراثية النباتية
تحية طيبة وبعد ،،،،،،،

- نرجو من سيادتكم التكرم بالنظر في مد فترة العقد المبرم بيننا وبين مركز البحوث الزراعية لإنهاء التصميمات الخاصة ببنك الجينات القومي وذلك للأسباب الآتية
- ١- مرض الخبير الأمريكى وإجرائه عملية جراحية فى القلب مما أدى إلى تأخره فى الحضور إلى القاهرة مدة تزيد على ثلاثة أشهر لمراجعة التصميمات المعمارية الإبتدائية .
 - ٢- عند وصول الخبير الأمريكى وبمتابعة الدكتور عبد المنعم أبو زيد وبمراجعة الرسومات المعمارية الإبتدائية المقدمة طلب الخبير الأمريكى والدكتور عبد المنعم أبو زيد تعديلات لازمة للمشروع وتم مناقشة ذلك معهم وقد أكدوا على ضرورة ذلك .
 - ٣- وبناءً على ذلك نرجو التكرم بمد فترة التصميمات ثلاثة أشهر إضافية من تاريخ اعتماد الرسومات الإبتدائية والتي تم الإتفاق على اعتمادها بعد التعديلات من الخبير الأمريكى والدكتور عبد المنعم أبو زيد خلال أسبوع وقبل سفر الخبير الأمريكى .

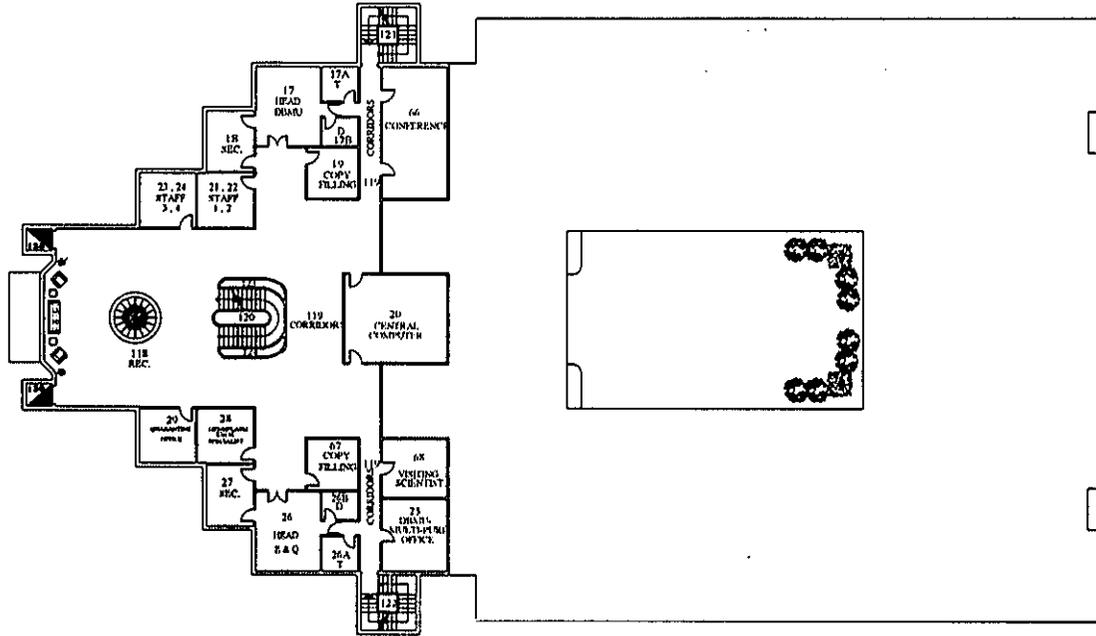
وتفضلوا بقبول فائق الإحترام ،،،،،،،

المجموعة الإستشارية إبراهيم الحيوان

إبراهيم
م.ا / إبراهيم الحيوان
المدير العام



PROJECT: NATIONAL GENE BANK (GIZA - EGYPT)	OWNER: AGRICULTURAL RESEARCH CENTER MINISTRY OF AGRICULTURE AND LAND RECLAMATION	MAIN CONSULTANT:  IBRAHIM EL HAYAWAN CONSULTING GROUP <small> M 00 400 EL ARSH EL QUALY ST. NAHA OFF. GIZA TEL: 0111804 - 8076888 FAX: 0111804 Email: i.hayawan@akc.com </small>	DRAWING TITLE: - BASEMENT FLOOR PLAN SCALE: 1 : 200 DATE: 21-10-2001 DWG. NO. A-01
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PROJECT :

**NATIONAL GENE BANK
(GIZA - EGYPT)**

OWNER :

**AGRICULTURAL RESEARCH CENTER
MINISTRY OF AGRICULTURE AND LAND RECLAMATION**

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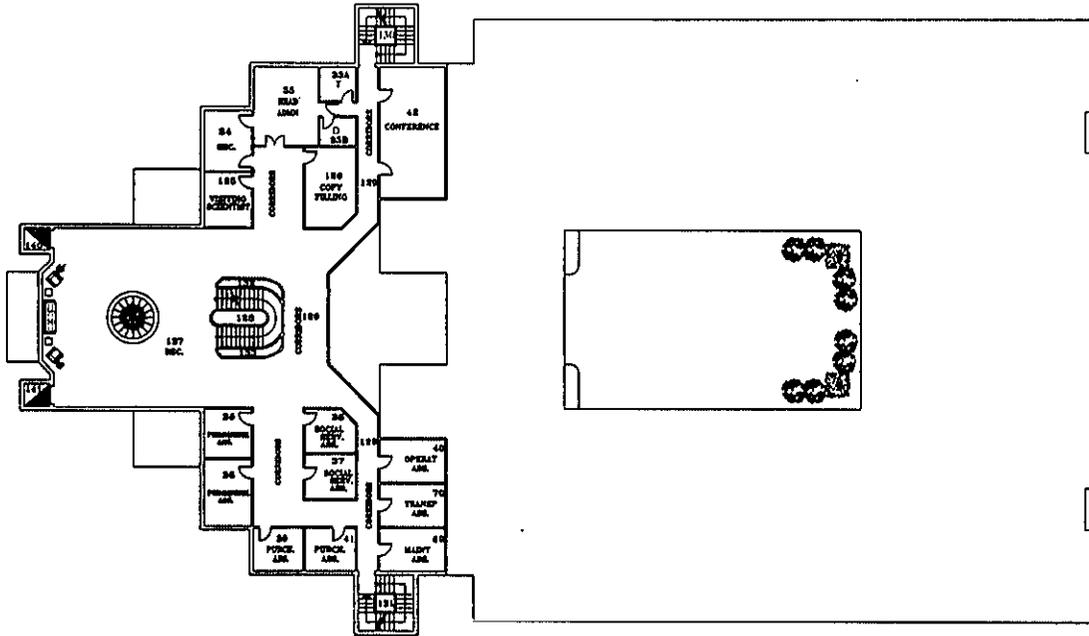
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FIRST FLOOR PLAN

SCALE :
1 : 200

DATE :
21-10-2001

DWG-NO. :
A-03



PROJECT:

NATIONAL GENE BANK
(GIZA - EGYPT)

OWNER:

AGRICULTURAL RESEARCH CENTER
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DRAWING TITLE:

SECOND FLOOR PLAN

SCALE:

1 : 200

DATE:

21-10-2001

CHK-NR.

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