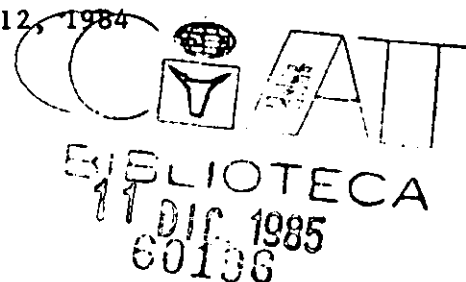


CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

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September 12, 1984



Mr. S. Shahid Husain
Chairman
Consultative Group on International
Agricultural Research
1818 H Street, N.W.
Washington, D.C. 20433

Dear Mr. Husain:

It is my pleasure to submit to you the report of the panel which conducted an external management review (EMR) of the International Center for Tropical Agriculture (CIAT) for consideration of the Group; to it is attached the response to the review from the board and management of CIAT. This is the fourth management review conducted within the CGIAR, following the reviews of CIP, IITA and WARDA in 1983, and was held concurrently with the external program review of CIAT.

The Group owes a debt to the board of trustees, the director general and the staff of CIAT for their cooperation and assistance in conducting the two reviews. Particular debt is owed also to Dr. Omand Solandt, who chaired the EMR panel, and to the panel members, Messrs. Emilio Madrid and Edmund Zdyb.

The EMR panel has conducted a detailed assessment of many aspects of management at CIAT. Its overall conclusion, which confirms the opinion of many who have observed the evolution of CIAT through the years, is that CIAT is a well managed center. The panel's report, by design, focuses more on the areas which need further strengthening than on CIAT's many strengths. The panel has chosen this approach in order to concentrate their limited writing time on generating a detailed document which could be used by the board and management of CIAT in their efforts to further improve the center's management effectiveness.

CIAT owes its success in management to its ability to orchestrate the congruence of a number of important factors:

- an active and effective board which has cordial but positive relationships with the director general;
- a strong and dynamic director general who has good rapport with staff and an effective decentralized management style;
- a well balanced top management group with a good communication network within the center;

- good human resource management of all categories of staff;
- cordial relations with the Government of Colombia; and
- a talented group of well-motivated researchers.

Thus, the board, management and the staff of the center are well justified in having pride in their institution.

The panel's emphasis in its report, as noted above, has been on identifying areas which need further strengthening. These mainly include management of the finance and administration directorate and the operations of the board.

In the area of finance and administration, the panel feels that working relationships and communication between the research, and finance and administration staff should be further improved. There is also an apparent need to decentralize authority and responsibility from the director of finance and administration to the managers of various units within the directorate. Other recommendations in this area relate to improvements needed in the integration of computers, internal auditing, and supply management. (See pp. vi and vii for the summary of the panel's recommendations.) On board operation the panel has made a number of useful suggestions, notably for improving the functioning of the audit committee.

The board and management of CIAT have been extremely receptive to the recommendations of the management review. CIAT's board met in May, shortly after the completion of the review, and took immediate action on a number of the panel's recommendations. The attached response from the board and management of the center shows that of the forty or so recommendations, suggestions or observations in the EMR report, more than half have been either fully or partially implemented immediately after the review, and on the remainder the center is in full agreement with the panel.

Clearly the Group should commend the board and the management of CIAT for their responsiveness to the suggestions of the EMR panel. The actions the center has taken as a result of the review demonstrate the receptiveness of CIAT to constructive criticism and represent important steps in further improving the management effectiveness of a good research organization.

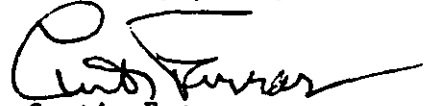
One of the recommendations of the EMR panel points to the need for upgrading the managerial skills of staff in management positions at CIAT. The EMR panels on IFPRI and ICARDA have also flagged this as an important unmet need. As the CIAT EMR panel has observed, this issue can perhaps be approached best through management training courses which are tailored to the needs of the international agricultural research centers. The Secretariat is investigating various alternatives and plans to discuss these with the center directors and board chairmen in the near future.

In conclusion, we recommend that the Group take the following action in connection with the EMR of CIAT:

- (1) commend CIAT's board and management for their past successes in building an effective and well-managed institution, and for their prompt action in the management area immediately after the completion of the external management review;
- (2) request the CGIAR Secretariat to accelerate its investigative work in the management training area and, after consultations with the center directors and board chairmen, report back to the Group in a year's time on the agreed course of action.

We believe this review has been extremely useful to CIAT. In addition to benefiting from the panel's observations, it has allowed the center to conduct a self-assessment of its own management effectiveness. This appears to be one of the important by-products of such reviews.

Sincerely yours,



Curtis Farrar
Executive Secretary
CGIAR Secretariat

SO:PG:pml

Attachments

14 May 1984

DIR-395

Mr. Curtis Farrar
Executive Secretary
CGIAR
1818 H. Street, N. W.
Washington, D. C. 20433
U.S.A.

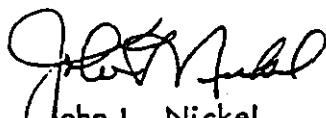
Dear Mr. Farrar:

The CIAT Board and Management commend the CGIAR Secretariat for the selection of the qualified External Management Review (EMR) Team, well balanced in terms of vast research, personnel and fiscal management experience. We also commend the team members for their great diligence and dedication which made it possible for them to cover so many areas of the Center so thoroughly, resulting in a rigorous appraisal elucidated in a comprehensive and useful report. In addition to the written report, the team also made a verbal presentation at a meeting of the CIAT principal staff and responded to questions and comments by the staff. This was very much appreciated by the staff of CIAT.

The CIAT Management, the Board Audit and Executive Committees, and the full Board of Trustees have thoroughly discussed the EMR Report with each other and with the EMR team chairman and are in general agreement with the overall conclusions of the report and the recommendations contained therein. Many of the actions recommended have already been taken. The remainder of the deficiencies noted are in the process of being corrected. The Center's responses to specific recommendations, suggestions and observations are summarized in the attached table.

We are in full agreement with the EMR team's overall philosophy that a research center such as CIAT should strive for an appropriate balance of minimal bureaucracy with adequate controls. To the degree that this review highlighted areas in this balance which could be improved it has been a useful exercise- and we are grateful.

Respectfully submitted,



John L. Nickel
Director General



Reed Hertford
Chairman, Board of Trustees

EXTERNAL MANAGEMENT REVIEW: CIAT ACTIONS TAKEN, OR PROPOSED TO BE TAKEN
IN RESPONSE TO RECOMMENDATIONS

Chapter I: The Board of Trustees

(R) That, when a Board member leaves before completing his term, the new member be appointed for the remainder of the incompletd term, and then be eligible for two more three-year terms.

The Board agrees with this assessment. However, changing the by-laws is a quite complicated process. Since the situation has rarely occurred in the past, the Board has agreed to wait with implementing this recommendation until it can be included along with other modifications needed in the future.

(R) That, since it was not the intention of the Board to invest responsibility for budget approval and for relating the program to the budget in the Audit & Finance Committee, the title of the committee be changed to "Audit Committee."

The Board agrees that the main budget discussions are held in the deliberations of the Board itself, and in its Executive Committee, and that the Audit & Finance Committee has essentially an audit function. Hence, at its XXIII Meeting, the Board of Trustees passed a resolution to change the name of the Audit & Finance Committee to "Audit Committee."

(R) That, in order to increase the effective use of the Internal Audit,

-the Internal Audit staff receive training in Electronic Data Processing (EDP) audit procedures and further training in operational auditing before expanding their program in EDP:

The internal audit staff has recently completed an initial two-week course in internal audit procedures in relation to EDP. IBM, Price Waterhouse, and Peat Marwick Mitchell (PMM) have been approached regarding the possibility of any one or a combination of these organizations to organize two additional one-week courses on this subject matter to be held sometime in 1984.

-a longer range plan be made for Internal Audit coverage of all CIAT operations, i.e., including operational reviews of the management processes at the research program level. A 4-year cycle is suggested.

In early May, the Internal Auditor presented to the Director General and the Audit Committee a comprehensive 4-year auditing plan which envisages to cover all CIAT operations as recommended by the EMRT. This plan was approved and will enter its operational phase on 1 June 1985.

(R) = Recommendation; (S) = Suggestion; (O) = Observations

-the Internal Auditor, after discussing his report with the auditee, incorporate in his report to the DG his recommendations together with agreed proposals for remedial action and a timetable for implementation, and that copies of the report go to the DG, the auditee and his supervisor, the Director involved, and the Audit Committee and External Auditors.

- (R) That CIAT Management rectify, in 1984, any reported weaknesses in inventory, and fixed assets.
- (R) That greater attention and commitment to action on observations in management letters be undertaken by both CIAT Management and the Audit Committee with the goal of avoiding any repetition of recommendations.
- (R) That CIAT Management prepare a full and detailed report for the Audit Committee and the Board of Trustees with respect to CIAT's financial commitments to the apartment housing project being constructed by a group of CIAT staff members, the risks that are involved, and the measures that have been taken to minimize these risks, especially during construction, and to obtain an independent legal opinion to make sure that all reasonable protective measures are being taken.
- (R) That the Nominating Committee be constituted by three members of the Board chosen by the Chairman from among the long service members who are not candidates for the chairmanship, and that the present Nominating Committee consisting of the Chairman, the Vice-Chairman and the Director General continue to function to propose new Board members.

(R) = Recommendation; (S) = Suggestion; (O) = Observation

The previously existing procedure for reporting by the Internal Auditor was modified and is now in full agreement with the recommendation by the EMRT.

Agreed. Plans are in place to remedy in the course of 1984 weaknesses identified by the External Auditors in inventory and fixed assets.

Agreed. It must be considered, however, that conceivably there are observations/recommendations by the External Auditors which, in order to be implemented, might require significant lead time and/or other resources which could delay timely compliance. In addition, if circumstances warrant it, the Board and Management may disagree with selected recommendations and not adopt them.

A full and detailed report on the apartment building project, including an independent legal opinion regarding reasonable protective measures, was prepared and presented to the Audit Committee and the full Board of Trustees, to their complete satisfaction.

The Board agrees with this recommendation, and, starting with the XXIII meeting, has implemented it.

(R) That the prohibition to renew the term of the Secretary to the Board be removed, and that the Secretary to the Board serve for an indefinite term at the pleasure of the Board.

The Board has removed the time limit on the term of the Secretary. A Resolution to that effect was passed at the XXIII Meeting of the Board.

(R) That all Board meetings be numbered consecutively, and that each committee have its own separately numbered series of meetings; that a suitable code be used to identify all papers that are presented to, or discussed at, each Board or Committee meeting; and that a list of members present and members absent appear on all Board and Committee Minutes.

This recommendation has been fully adopted at the XXIII meeting of the Board.

(R) That the quest to attain adequate status of CIAT as an international agency continue to be pursued with vigor and dispatch.

The CIAT Board and Management, the co-sponsors of the CGIAR, and appropriate Colombian Government authorities are continuing their intensive efforts to develop an agreement which is acceptable to all parties involved and would grant CIAT appropriate international status.

Chapter II: The Director General and his Internal Communications

(S) That CIAT Management look critically at the subject matter which is addressed by any integral management oriented committees it may establish, to ensure that CIAT managers continue to exercise their delegated responsibility and authority.

(R) That the CGIAR investigate the possibility of setting up management training courses with a curriculum tailored to meet the needs of the Centers.

CIAT Management is very much aware of the importance to assure that its participatory decision making through its committee system will not infringe on the responsibilities and authorities vested in CIAT managers. Throughout the several years of CIAT experience with its committee structure, this has never proved to be an issue or difficulty. CIAT will continue to strive to ensure that committees will not interfere with the decision making integrity of its officers.

CIAT would be happy to use IARC oriented management training courses in which its management personnel could participate. CIAT endorses this recommendation and has been seeking such courses.

Chapter III: Finance & Administration

- (R) That the DFA reassess the activities of the Administrative Procedures Department to ensure evaluation of procedures and possible streamlining.
- (R) That the Administrative Systems Department consult with management "users" of the S/36.
- (R) That a contingency plan be developed for delays with S/36.
- (R) That the Administrative Systems Department prepare policies for development of computer applications.
- (R) That outside EDP services be contracted to provide additional expertise, and that it be considered to involve outside auditors.
- (R) = Recommendation; (S) = Suggestion; (O) = Observation

Prior to preparation of new detailed procedures, actual operations are carefully analyzed and simplified where possible. The Purchasing Manual which was contracted with PMM was very detailed and complete and has already been revised several times. New Manuals for other areas have been simplified.

In areas such as accounting, budget, and payroll, in which experience of other organizations is of value, it is both more cost effective and quicker to purchase software packages than to develop new packages. These packages offer sufficient flexibility for management reporting to meet any anticipated needs. Consultations have now started with Directors, Coordinators and others on the format and content of reports as well as additional information requirements.

Although by the time the Board met in early May several software packages had already been successfully mounted on the S/36, thus reducing the need for fallback positions, a contingency plan has been presented to, and approved by, the Audit Committee.

A manual for operation of the S/36 has been prepared. Purchased software packages come with documentation. Drafts of policies for in-house applications are being prepared. A plan for developments in the next three years will be presented to the next meeting of the Audit Committee.

A contract with PMM to assist the Administrative Procedures Department has been used also to help with EDP. Management will study the need for additional assistance.

(S) That Management consider and prepare for the significant differences between batch and on-line data processing.

Management is aware of the problem and is taking measures to minimize their effect. Training programs for appropriate personnel are underway.

(S) That a step-by-step approach be considered to implement procedures, improved controls and new systems.

As noted by the MRT, processes on-line are so different from batch processes that a step-by-step approach is not practical and would be an unnecessary complication. Nevertheless, where it is indicated it will be followed.

(S) That the title of the Administrative Systems Department be changed.

A new title will be adopted when the Department is merged with the Administrative Procedures Department.

(O) Observation that there are no notices on emergency measures in the housing area.

A review of safety and emergency procedures will be carried out and improvements made as necessary.

(O) Observation that "housekeeping" in the warehouse could be improved. Some minor discrepancies in the Kardex system were observed.

Work is well advanced on up-dating the location of items in the Kardex record. Increased attention will be given to "housekeeping."

(O) Observation that inventories are high and
(R) recommendation that the Audit Committee examine figure for obsolete materials every year.

The MRT noted that inventories were down but still high. This enables more items to be delivered from stock as recommended in the next recommendation. The MRT say they understood at least US\$200,000 was obsolete. In fact about US\$200,000 of inventories have been identified as slow moving but not necessarily obsolete. Spare parts are kept for a vast variety of equipment, some of which may never be needed but must be kept on hand. Facilities for separating, controlling and disposing of surplus material have recently been completed. These will help to decongest the warehouse and help the disposal process.

(O) Observation that the performance of the Supplies Department could be improved by:

- 1) delivering from stocks;
- 2) being practical in obtaining quotations;
- 3) improving communication with UNITEX.

(R) That the advantages of a change in the organization of the warehouse be examined.

(O) Observation that a more positive attitude needs to be developed within Finance and Administration.

(R) That the DFA be encouraged to continue initiatives to "reach out" to Programs.

(R) = Recommendation; (S) = Suggestion; (O) = Observation.

- 1) with 15,000 items in stock a large part of programs' needs are issued from stock and within 24 hours. A delivery service for orders up to 1000 kg was recently started. With computerization delivery times can be further improved;
- 2) changes have been made to increase the value of items bought for cash and quotation requirements have been simplified;
- 3) UNITEX has been invited to submit a proposal for the improvement of the existing contract; also regular visits to CIAT have been agreed upon for the purpose of discussing problem cases and for general coordination.

The change suggested is one of several which Management had under consideration at the time of the Management Review. Computer software which has now been contracted can handle several different approaches.

Efforts are constantly being made to improve services while at the same time satisfying donors' and auditors' requirements. Specific items of general interest are addressed at Division-internal staff meetings; in addition regular meetings with specific sub-groups to discuss problem areas and identify solutions have been instituted.

Thorough discussions with the DFA regarding this aspect have been held. As a result a series of improvements, such as noted above, have already been, and will continue to be instituted.

(R) That the DFA accelerate delegation to his team.

During the period of major change in the last year and until new staff find their feet, certain tasks, e.g., budget preparation, have been performed by those most familiar with the subject. The process towards increased delegation has already started, and once things settle down additional delegation to the proper level can and will be accomplished.

(R) That the DFA develop a set of policies and guidelines for Special Projects for use by scientists in pursuing research proposals.

This will be done although it is important that the Finance & Administration staff be involved at appropriate stages in the negotiation of Special Projects.

(R) That the DFA develop orientation programs for Special Project personnel to be posted overseas.

Each special project tends to be different; but to the extent that there are common elements, e.g., cash management, a program will be developed. A special meeting called by the DFA with all outposted staff for this purpose took place on the occasion of the most recent internal program review.

(R) That the budget document show activities at other sites.

The division of activities between sites is not always clear cut; however, to the extent possible, the budget will show inputs to each site. It is also planned to show budgets and expenditures by functional activities.

(R) That the budget document include operational plans for administrative and general support functions.

More details of this nature will be given in future documents.

(S) That costs in self-supporting functions be examined for possible savings.

Management is aware of the need to examine these costs and some of the new computer applications will assist in improving cost-accounting procedures.

Chapter IV: The Research Support Units

(R) That a study or studies be initiated as soon as possible to explore the options for developing and adapting the Seed Unit into a more autonomous unit, with the hope that by doing so it might be possible to attract additional sources of funding, increase income earning opportunities, and expand operations without being a drain on CIAT's core resources.

A nearly identical recommendation was made in the report of the EPR (Paragraph 435 in EPR Report). This recommendation was fully accepted and a mechanism for the study described. A detailed description of the CIAT position on this issue is contained in "CIAT Commentaries on the Report of the Second External Review."

Chapter V: The Research Programs

(S) That the structure of the organization at the Director level be examined in the light of increasing decentralization.

(S) That free personal intercommunication be encouraged at all levels between research program personnel and people in Finance and Administration to improve mutual understanding of respective needs, especially with regard to financial reporting and supplies.

A similar suggestion was made by the EPR. In response, the Director General--in consultation with the ExCom--engaged in a thorough analysis of available alternatives. The result of this analysis is a proposal for a redistribution of responsibilities between the two program directorates. One will have administrative and technical oversight responsibilities for both research and international cooperation activities of the Bean and Cassava Programs, along with center-wide responsibility for international relations with countries in Africa and Asia; the other will have administrative and technical oversight responsibilities for the Rice and Tropical Pastures Programs and center-wide international relations responsibilities for countries in the Western Hemisphere. These proposed changes are to be implemented on 1 September, 1984.

The personnel in all financial administration sections of CIAT has been encouraged to significantly increase direct, interpersonal contact with their clients throughout CIAT and to make a dedicated effort to find out, and be interested in, their needs and expectations; and to try to provide services so as to meet these needs. On a parallel basis, staff at all levels in research and support programs have been encouraged to try to understand the requirements on the part of the personnel in financial services, and to act in accordance with these requirements. To improve communication between supplies and the user community, an ad hoc committee consisting of representatives from both groups has been established which is to meet on a periodic basis to discuss problems and identify solutions.

TABLE OF CONTENTS

	<u>Page</u>
REPORT OF THE EXTERNAL MANAGEMENT REVIEW TEAM	i
ACKNOWLEDGEMENTS	ii
INTRODUCTION	iii
THE EXTERNAL MANAGEMENT REVIEW TEAM	iv
PREFACE	v
SUMMARY OF RECOMMENDATIONS	vii
CHAPTER I. THE BOARD OF TRUSTEES AND ITS COMMITTEES	1
- The Board of Trustees	1
- The Executive Committee	2
- The Program Committee	3
- The Audit and Finance Committee	4
- Internal Audit	5
- Management Letters	7
- Housing Loans	7
- The Nominating Committee	10
- Secretary to the Board	10
- Board Minutes and Papers	10
- Mandate	11
- International Status	12
CHAPTER II. THE DIRECTOR GENERAL AND HIS INTERNAL COMMUNICATION AND SENIOR STAFF MANAGEMENT	13
- The Director General	13
- Internal Communications	13
- Policies and Procedures for Senior Staff	16
- Annual Evaluation	17
- Management Training	18
- Nationalities of Senior Staff	19
CHAPTER III. FINANCE AND ADMINISTRATION	20
- Administrative Procedures Department	20
- Administrative Systems Department	21
- Controller's Office	23
- General Services	23
- Property Management	24
- Human Resources	25
- Maintenance	26
- Bogota Office	26
- Visitors Office	26
- Travel Office	26
- Food and Housing	26

	<u>Page</u>
- Supplies	27
- Management Themes	29
- Service and Team Philosophy	29
- Delegation of Authority and Responsibility	30
- Special Projects	30
- CIAT Budget System	32
- Revenue Generation	34
CHAPTER IV. THE RESEARCH PROGRAMS	35
- Organization	35
- The Research Programs	36
- The Bean Program	36
- The Rice Program	37
- The Cassava Program	37
- The Tropical Pastures Program	38
- Summary Comments	38
CHAPTER V. THE RESEARCH SUPPORT UNITS	40
- Training and Conferences	40
- Genetic Resources Unit	41
- Station Operations	41
- Management and Administration of Activities at Sites other than CIAT Headquarters, Palmira	41
- The Carimagua Research Center	43
- The Aircraft	44
- Research Services Unit	44
- Communication and Information Support Unit	44
- Seed Unit	45
- Computers in CIAT	46
- Data Services Unit	47
- Biometrics Section	48
- Agroecological Studies	48
- Phosphorus Project	48
- Crop Projects of Sister Institutions at CIAT	49
APPENDICES	
Omond M. Solandt (Appendix I)	
Edmund M. Zdyb (Appendix I)	
Emilio Madrid (Appendix I)	
Terms of Reference (IARC Management Reviews) Appendix II	
Organization Chart (Appendix III)	
CIAT Personnel Interviewed (Appendix IV)	
Glossary of Acronyms (Appendix V)	

REPORT OF THE EXTERNAL MANAGEMENT REVIEW TEAM

This report contains the results of a Management Review of the Centro Internacional de Agricultura Tropical (CIAT) that was commissioned for the Consultative Group for Agricultural Research (CGIAR) by its Secretariat. It should be read in conjunction with the report of the External Program Review (EPR) Team which simultaneously conducted a complementary study on behalf of the Technical Advisory Committee (TAC) which advises the CGIAR on programs. The dividing line between the work of the two teams is not easy to define and some of the interfaces between the Reviews are in areas of great importance. The effort to avoid any gaps between the two reports has almost certainly resulted in some minor overlapping.

To avoid unnecessary duplication this report contains a very brief description of CIAT as an institution. The reader interested in greater detail should consult the EPR Report.

To save space initials or acronyms are used extensively. In each case the first time a name or title is used it is given in full and followed by the acronym in brackets. A glossary of initials is included in Appendix V.

ACKNOWLEDGEMENTS

The Management Review Team left CIAT with a deep impression of having been temporarily immersed in the work of an outstanding research team operating with a real sense of urgency and commitment. It was an exciting and sometimes exhausting experience.

In such circumstances it is almost impossible to thank everyone who helped us since each person that we encountered helped in some way--so first, thanks to the entire staff of CIAT for welcoming us into their midst for a few weeks.

Dr. John Nickel, the Director General, gave us our initial orientation and was always available for discussion. All the Directors, Program Coordinators and many others that we talked to were equally helpful.

Firtz Kramer, Assistant to the Director General, made arrangements for us, generally acted as our counsellor and supplied much of the information that we sought.

Gloria de Escobar stayed many evenings to help complete the manuscript on the word processor.

David Evans and his staff kept us comfortable and over fed.

To all of them and to any others who have been overlooked go our warmest thanks.

During the week of May 7-11 the Chairman of the Team (OMS) met with the Audit Committee, the Executive Committee and the full Board. Discussions were full, frank and friendly. Sincere thanks are due to all the members of the Board but especially to Reed Hertford (Chairman of the Board) and to Prof. John Dillon, Chairman of the Audit Committee for so skillfully guiding the discussions.

Our hope is that donors will feel that we have done a thorough and honest job of looking at the management of CIAT and will be reassured that their money is being wisely spent. We have made some suggestions for improvement--in many cases merely for accelerating actions already begun. CIAT has long been a first class organization but is developing an increasing capacity for internal review and improvement. We feel confident that the next review will show that CIAT will have more than kept pace with the growing demands of its mandate.

Formal management reviews as an integral part of the periodic external review process are still in a process of evolution. The reviews and their evolution are being guided by the CG Secretariat under Mr. Curtis Farrar. Peter Greening took the major responsibility for guiding the first review at CIP where he made an indispensable contribution to the work of the team. Mr. Selcuk Ozgediz did the original planning and early implementation of this study at CIAT but personal problems prevented him from taking part in the final stages. His place was taken, on short notice, by Peter Greening who, once again, played a key role.

All of the CG staff, and in this case particularly Peter Greening, have done an excellent job in steadily perfecting the process of the management reviews without attempting to impose their ideas on the team. The EMRT wish to express their gratitude to the Secretariat for their wise guidance and active and friendly help.

INTRODUCTION

CIAT is a rapidly evolving, living, and lively institution. This report presents a single and probably somewhat blurred picture of this rapidly moving organism. Consequently, a little history is needed to describe where the institution has come from and where it seems to be going. This introduction is intended only to give some general impressions.

CIAT was founded just over 15 years ago by the Rockefeller and Ford Foundations. The International Rice Research Institute (IRRI) in the Philippines and the Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT) in Mexico had begun to show great promise, so the two Foundations decided to establish CIAT in Colombia for Latin America and the International Institute for Tropical Agriculture (IITA) in Nigeria for Africa. IRRI had been given a clear cut global mandate for rice and CIMMYT for wheat and maize. Both CIAT and IITA were planned as regional centers to do research on farming systems of special importance to the very poor farmers in their areas. Both started with secure funding, expansive plans and firm direction from the Foundations. They were conceived as major research centers and were provided with ample land and buildings.

Experience soon showed that CIAT's program was too diffuse. Over the years the program was progressively narrowed until it now focuses on four commodities: rice, beans, cassava and tropical pastures. Its activities are carefully planned to support National Programs and include training and provision of seed. The early emphasis on animals and animal diseases has almost entirely disappeared. A herd of 4000 cattle remains at Carimagua as a means of measuring yield and nutritional value in the Tropical Pastures Program. The herd is also a minor source of revenue.

Emphasis on working with and through National Programs has always been strong. Training, although its nature has changed over the years, is still seen as a major means of strengthening these national programs.

Until recently CIAT did no major work outside Latin America even though its principle mandates for beans, cassava and tropical pastures imposed no geographical limitations. In the last few years it has steadily increased its activities in Asia and Africa.

It has also continued to take new scientific and technical initiatives including the increasing use of tissue culture in the Cassava Program and exploration of practical applications of mycorrhiza.

This evolution of CIAT has been guided by a strong Board of Trustees and a dynamic and effective Director General (DG). In recent years the effectiveness of the Board has been increased by refinements in the committee structure and especially by the addition of an Audit and Finance Committee.

THE EXTERNAL MANAGEMENT REVIEW TEAM

The External Management Review Team (EMRT) consisted of Ormond M. Solandt, Chairman, Emilio Madrid and Edmund M. Zdyb. Brief biographies are in Appendix I.

Management reviews within the CG System are still in the experimental stage. This is the fourth formal management review. The first was done at CIP in February 1983, the others were in IITA and WARDA later in 1983. The terms of reference for management reviews and the instructions to the management review teams have evolved rapidly during this year. The terms of reference that were provided for the present review are given in Appendix II.

The Review Team was appointed in November and December 1983 and the members were provided with extensive documentary background material early in January 1984. Two of the EMRT (OMS and EM) attended the CIAT Internal Review from January 30 to February 3. On Saturday, February 25, the whole Team met in Miami to visit UNITEX INTERCORP a small private company which acts as purchasing agent for much of CIAT's buying in the United States and Europe. The main work of the EMRT began at CIAT on Monday, February 27. The original plan was that the work of the EMRT should coincide with that of the External Program Review (EPR) Team from March 5 to 23. This was later moved forward a week to run from February 27 to March 16. In the original plan the EMRT was to report to both the Audit and Finance Committee and the Executive Committee when they both met on March 22-23. It later appeared that prior commitments prevented John Dillon, the Chairman of the Audit & Finance Committee from being present at that time. The Director General (DG) and the CIAT Board decided that they would prefer to have the Management Review Team report ready for Professor Dillon to read on Wednesday, March 14 for discussion on Thursday, March 15 prior to his departure on the 16th. The Team met this earlier deadline with only a moderate consumption of midnight oil.

The EMRT began with a broad survey of CIAT management at top and intermediate levels to identify areas that seemed to warrant study in greater depth. Difficulty was encountered in obtaining sufficiently detailed information in a few of these areas and this slowed our progress. As a result we were not able to return to all important areas to delve more deeply. These include especially budget analysis, financial details such as treatment of inflation and devaluation, and a careful search for functions which could be made more cost effective. We believe that this limitation on our review has not resulted in any important points being missed.

The primary aim of the Team has not been to expose past shortcomings but to give critical study to past actions in order to try to make suggestions that will help to ensure better operations in the future. In making the suggestions and recommendations which follow the EMRT seeks to help in improving an already effective internal management system, including research management, administration and finance in order to achieve an even more cheerful, effective, efficient, and productive team effort.

PREFACE

A close-up view of CIAT from a management point of view discloses a very dynamic, active and apparently successful international research center. The report of the External Program Review which evaluates the quality and relevance of CIAT's research programs testifies to its success in achieving excellence in this even more important measure of success.

From a purely management point of view there are many evidences of success. Over the past years the program has been extensively changed to focus resources more effectively to meet carefully considered priorities. This has been done under the DG's leadership but with full participation by the Board, the Program Committee and the senior research staff.

The pattern of organization that has resulted on the research side has been built around available staff and has worked well but will need modification to meet the demands of the future.

On the Finance and Administration side the situation is not as satisfactory. The Board recognized that there were problems in this area at least as early as 1981. In 1982 it appointed an audit and finance committee and strengthened the role and the staff of the internal auditor and appointed A.V. Urquhart, the former Controller, as Director of Finance and Administration (DFA) (a new position). The discovery, later in 1982, of financial irregularities confirmed the wisdom of these actions. Extensive remedial action followed. In March 1983 a new Controller was appointed and in April a new Head of Purchasing.

CIAT like many of the other International Agricultural Research Centers (IARCs) has had a long and difficult struggle to integrate computers into its organization. As a result the accounts were in 1983 being done by a batch process on the central IBM 4331 Computer. In August 1983 the DFA engaged an experienced computer expert to head a new Administrative Systems Group which was to provide a final recommendation on a system for the management of financial and administrative data. They recommended the use of a separate computer and were then asked to select, install and operate the new computer for use primarily by finance and administration. This group was temporarily reinforced by an Administrative Procedures Group to write Manuals. In September 1983 an IBM System 36 computer was ordered for delivery in March 1984.

As this report shows all this remedial action has not yet had full effect. Much of the critical comment in the report is devoted to suggestions for accelerating the process. Most of the situations that are criticized were known to Management and the Board and should be effectively dealt with by the remedial actions already initiated.

In spite of these problems the Financial and Administrative side of CIAT has continually been able to deliver most of the support needed by the research programs. The handling of personnel matters by Human Resources has been outstanding. Farm management, food and housing, station maintenance, transport and other support services all deserve praise.

CIAT's past accomplishments have been great and our study has revealed nothing that cannot be speedily corrected to ensure continued success.

SUMMARY OF RECOMMENDATIONS

Ideally the report of a management review would describe in equal detail both what was found to be good and worthy of praise and what was less good and could be improved. This summary mentions mainly those areas where improvement seems to be necessary or at least worthy of consideration.

In the body of the report there are some well deserved words of praise but no attempt has been made to mention ever thing that is praise worthy. An already over-long report would have become interminable. "No news" can be taken as "good news".

Chapter I - The Board of Trustees and Its Committees

Several useful suggestions are made for improving the operations of the Board. These include details of member's terms (Page 1) dropping the word Finance from the title of the Audit and Finance Committee (Page 3) changing the composition of the nominating committee (Page 9) appointing the Assistant to the DG as continuing Secretary of the Board (Page 9) and numbering Board and Committee meetings and identifying papers that are discussed at these meetings (Page 10).

Under the discussion of the Audit Committee (Page 3) are listed some actions that could be taken to improve the internal audit. These include training for EDP and operational auditing, preparation of a four year audit plan, and an improved procedure for dealing with Audit reports.

More important actions that must be undertaken by the Audit Committee include: (1) (Page 7) Ask management to prepare a plan to rectify, in 1984, reported weaknesses in internal controls, inventory and fixed assets. Monitor progress. (2) Study each annual management letter from the external auditors. Ask management to prepare plans to remedy any deficiencies and get progress reports until the task is complete; (3) (Page 9) Ask management to prepare a full report on the progress of the apartments now under construction by the staff, including full details of CIAT's contribution and how it is being protected.

The importance of achieving adequate status as an international agency is re-emphasized (Page 11).

Chapter II - The Director General and His Internal Communications and Senior Staff Management

Commends the DG for his excellent communications and makes several suggestions but none individually warrant inclusion here.

Chapter III - Finance and Administration

The Director of Finance and Administration should re-assess the methods and approach used in his department (Page 20). A series of important suggestions are made to facilitate the introduction of the System 36 computer in Finance and Accounting (Pages 20-22). Problems in the Supply Section are discussed and remedies suggested. A possible change in method of operation is outlined for future consideration.

There is a need to further improve the service and team philosophy within Finance and Administration (Page 28). Operational issues should be handled at appropriate lower staff levels rather than by the DFA (Page 29).

Guidelines should be developed for the use of Senior research staff in discussing financial and administrative issues during the negotiation of special projects or contracts (Page 31).

An orientation program on financial and administrative matters for staff being outposted would be useful (Page 31).

Budget documents should include more detailed information on program activities at sites other than Palmira and on the general support functions as affected by program changes (Page 32).

Units that show regular annual cycles in their spending should prepare monthly spending targets accordingly (Page 32).

Chapter IV - The Research Programs

The structure of the organization at the Director level should be examined in the light of increasing decentralization (Pages 34-35).

A summary of comments on the programs is on Pages 37-38.

Chapter V - The Research Support Units

These are generally commended.

CHAPTER I. THE BOARD OF TRUSTEES AND ITS COMMITTEES

Board of Trustees

Chapter III, Article 8 of the By-Laws of CIAT states: "The Center shall be under the direction of the Board of Trustees and of an Executive Committee of that Board." Article 9 provides that the Board should consist of no more than 17 members, 4 of whom are ex-officio: the Colombian Minister of Agriculture, the Rector of the National University, the Director General of the Instituto Colombiano Agropecuario, and the Director General of the Center. Of the remainder at least nine shall be elected by the actual members of the Board and also at least one shall be a citizen of Colombia. In 1981 the Board, by resolution, agreed that the CGIAR would have the right to propose three candidates for Board membership. These would then be automatically appointed by the Board. Since the nominations are only made after full discussion with the Board, this provision has not created any problems.

The Board membership seems to be well balanced and to have adequate regional representation. Action has already been taken to broaden this representation as programs spread to new regions. There are now members from Asia and Africa. The number of ex-officio members from Colombia is unusually large but works well. The appointment of a woman member has apparently been welcomed by everyone.

Recommendation:

Membership on the Board is for three years once renewable. A member can serve a third term after being off the Board for two years. A minor but potentially troublesome provision in the by-laws is that, when a Board member leaves before completing his term, a replacement is appointed at the next meeting for a new three-year term. The correct procedure is that the new member is appointed for the remainder of the incompleted term and is then eligible for two more three-year terms. If this provision is not included a situation can easily arise where an excessive proportion of Board members reach the end of their term in the same year.

The Chairman and Vice-Chairman are elected by the Board of Trustees for a two-year term and each may be re-elected for an additional term of two years or until the end of his or her six-year term as a Board member. The Board must meet once a year and the quorum is a majority (one-half plus one).

Unfortunately, in spite of determined efforts by both the Board and the Team, the EMRT has had little chance to interact with the Board. The Chairman had a brief meeting with the Chairman of the Board in Washington in November 1983 and several later telephone conversations. He also spent an hour with the Program Committee and the new Board members at the time of the Internal Review. We also had a lunch meeting with the Chairman Emeritus and a telephone conversation with the Chairman. Our main contacts were extensive discussions with the DG before and after writing our report and full discussions with the Chairman of the Audit and Finance Committee after he had read our draft report. We also had ready access to the Minutes of the Board and its Committees.

As a result of this input, especially from reading minutes, we have concluded that the Board has taken an active and effective part in forming policies and in discussing matters brought to it by the Chairman and the DG. It has been especially active on Program and Budget matters. During the last two years it has, through the Audit and Finance Committee, played a more active role in monitoring administrative and audit problems.

The Board's relationship with the DG appears to be cordial and productive. It has not been a passive relationship on either side, views have differed, disagreements were not uncommon and discussions lively but it has been a productive relationship.

The present Chairman has made a very substantial contribution to the work of the Center. He has devoted far more time to the task than is usual and has made extensive contacts among the staff.

The problems surrounding the financial irregularities discovered in 1982 and the many decisions required in connection with long range planning and geographic expansion have put a special burden on the Chairman, the Board and the DG. These strains have made it especially difficult always to maintain the delicate distinction between the policy making function of the Board and its Chairman and the management responsibilities of the DG.

The Executive Committee

Article 14 of the by-laws provides for a seven man Executive Committee (with a quorum of four). Its functions "shall be determined by means of resolutions of the Board of Trustees."

At its meeting on July 22, 1974 "The Board, in Resolution No. 4, authorized the Executive Committee to act in its behalf on all matters requiring action between regular and special meetings of the Board with the ExCom to report its actions to the Board". Exceptions were made for policy matters where the by-laws specifically required Board action or where the ExCom decides that full Board action is desirable.

We were informed that the Chairman plans to present a paper to the May 1984 meeting that will redefine the role of the ExCom.

The by-laws do not provide for any other standing committees nor do they provide any specific authority for the establishment of committees. Nonetheless the Board, by Resolution No. 3 at the same meeting "established two standing committees of the Board: a) Budget and Finance, and b) Program. For the time being the Executive Committee will act as the Budget and Finance Committee."

Perusal of past minutes indicates that the Executive Committee has been active and effective in a wide range of financial and administrative matters. In 1983 the Chairmen of both the Program and the Audit and Finance Committees were on the Executive Committee so it was in a position to coordinate matters going to the full Board.

The Program Committee

The Program Committee consists of six Board members appointed by the Chairman of the Board. General guidelines for the operation of the Program Committee were laid down by Howard Stepler, the first Chairman of the Committee, in February 1975 when the Committee began work. At the 1982 meeting the CIAT Board approved a new outline of objectives and operational procedures which was presented to the Board by Martin Piniero, the current Chairman of the Program Committee. This excellent paper appears as Appendix IV to the Minutes of the 1982 Board meeting and emphasizes that the Program Committee is an advisory committee to the Board. Its main concerns are with the relevance, the scientific quality and the impact on developing countries of the Center's programs. The main activity of the Committee is participation in the Annual Internal Program Review. In its annual report it informs the whole Board on program developments and makes suggestions and recommendations for change. It also speaks for the Board in interpreting decisions in relation to program matters.

Especially during periods when funds were short and priorities between programs had to be examined carefully and where key decisions on location and nature of new international initiatives have been faced the Program Committee has done an outstanding job. It gives the program scientists a real feeling that the Board is listening to their views.

The Audit & Finance Committee

The Audit and Finance Committee was established by the CIAT Board at its meeting on 1-2 April, 1982. The Committee had already had a meeting on March 29 & 30 prior to its formal establishment. The Audit & Finance Committee, consisting of four active members (Chairman plus 5 in 1983) of the Board, is appointed each year by the Chairman of the Board. The Committee has authority to investigate any activity of the Center and all employees are directed to cooperate as requested by the Chairman of the Committee. The Committee must hold at least one regular meeting each year. The Committee Chairman and one other member constitute a quorum; minutes must be kept and distributed to each member of the Board of Trustees. The proposal for the establishment of the Committee, as it was approved by the Board of Trustees, contains very detailed descriptions of the responsibilities and duties of the Committee. Seventeen duties are listed covering every aspect of the audit and financial control. The EMRT commends the establishment of the Committee and the detailed description of its duties.

In its annual examination of expenditures the committee, in studying significant variances should give special attention to Inventories and Receivables.

Recommendation:

A brief study of the minutes of the Executive Committee showed that it has, in practice, conducted the main budget discussions. It has been responsible for relating the program to the budget, for recommending budget cuts where required, and for scrutinizing financial reports to monitor

expenditures. There is no indication that it was the intention of the Board to change this function of the Executive Committee when it established the Audit & Finance Committee. It therefore appears that the title of the Audit & Finance Committee is misleading. We recommend that the title of the Committee be changed to Audit Committee. Any residual ambiguity concerning the functions of the Committee could be removed by amending Item 1, under duties. It now reads: "Review of results of previous years with the Chief Financial Officer." This might now read: "Review of accounts for previous year with the Chief Financial Officer."

The very important functions of keeping in touch with both the internal and external auditors and with the operation of financial and administrative controls and reporting are integral and important parts of the responsibility of the Board of Trustees. In many Boards these responsibilities are delegated to the Executive Committee to be exercised along with its responsibilities for budget and expenditure control. Until 1982 this was done in CIAT and the results showed that the task of scrutinizing the results of audits did not get adequate attention. It would therefore seem to be wise to continue the Audit Committee as a separate entity and to attach great importance to the results of its deliberations. These should be briefly reviewed by the Executive Committee and the main points fully discussed at the ensuing Board meeting.

Experience in CIAT and in other CG Centers demonstrates the need for ensuring that some members of the Board, those who will serve on the Audit and Finance Executive Committees, should be selected primarily for their management experience. The search for suitable experience should not be limited to academic or government spheres nor to agricultural disciplines. Experience in business or industry should be accepted, especially where it has included the management of a corporation that does research and uses advanced technology.

What is needed is someone who is thoroughly familiar with financial management and with Controllers and auditors. The experience of the Audit and Finance Committee at CIAT has shown that auditors and scientists can talk to each other without either clearly understanding the other's message. An experienced businessman is more likely to "get the message" and also better know how to interpret the over-optimistic views that sometimes come from management in reply to criticism from the Auditor.

The three sections that follow could well have been included later in the financial section of the report but have instead been inserted here because they deal with matters that should receive early attention from the Audit and Finance Committee.

Internal Audit

For some time CIAT has had an internal audit function as part of its management organization. The role of the internal audit function has been increasing in recent years. Upon the recommendation of the External Auditors CIAT management in 1982 upgraded the role of the internal auditor, hired a professional auditor, and placed him in a direct reporting relationship to the office of the DG. In 1982 Internal Audit activities concentrated on the fraud investigation, as well as on planning and organizing for its own first full year of enhanced operations, i.e., 1983.

Internal Audit prepares an annual program of proposed audit activities which is discussed with the DG and then presented to the Audit & Finance Committee. The work plan for 1983 addressed a number of topics in the area of financial auditing, operations auditing, and special programs. For the last three years the external auditors, as part of their annual management letter to CIAT, have included a recommendation that Internal Audit include a review of CIAT's research programs in its annual audit program. However, it appears the current work plans as described above are already quite ambitious in view of the limited audit staff resources. Moreover, discussions with Internal Audit indicated that specific training programs will be required before it can assume such a major responsibility.

The Internal Auditor now sends his reports directly to the office of the DG who automatically copies them to members of the Audit and Finance Committee. The DG reviews the recommendations or issues and directs them to the responsible CIAT staff for remedial action. It would be easier for the Internal Auditor to monitor corrective action by such staff and to report systematically to the Director General on the status of such actions if he were more closely involved in the corrective process.

The EMRT commends the Board and Management on its progress in strengthening the Internal Audit.

Recommendation:

In order to increase the effective use of the Internal Audit the following actions are recommended:

- 1) An on-line financial and administrative computer system is being installed and should be taking over completely by the end of 1984. The Internal Audit staff need training in Electronic Data Processing (EDP) audit procedures. The external auditors are already taking steps to improve their own knowledge in this field. The Internal Auditors also need further training in operational auditing before expanding their program in that field.
- 2) A longer range plan should be made for Internal Audit coverage of all CIAT operations, i.e., including operational reviews of the management processes at the research program level. A four-year cycle is suggested. This would allow a study of CIAT's operations in terms of specific audit entities to be reviewed at least once in every four-year "audit cycle". This plan should be discussed with the Audit Committee to ensure that the upcoming audit projects do in fact represent the current priorities of both Center management and the Audit Committee. Such an approach would also identify whether or not there are sufficient staff resources to meet the audit requirements indicated by the Committee.

- 3) The existing procedure for reporting by the internal auditor could be improved by having the auditor, after discussing the draft of his report with the auditee, incorporate in his report to the DG his recommendations together with agreed proposals for remedial action and a timetable for implementation. Copies of the report would go to the DG, the auditee and his supervisor, the Director involved and the Audit Committee and External Auditors.

The preceding approach would achieve two results, one being that the DG would be able to focus on a summary of recommendations and actions, and could easily concentrate only on specific areas of interest and importance. Secondly, follow-up activity by Internal Audit would be simplified in that responsible individuals would have been identified together with the respective implementation dates. This approach would make it easy for the DG and the Audit & Finance Committee to identify cases where major remedial commitments had not been achieved.

Management Letters

The focus of an external auditor is to develop sufficient information and reliance on a client's accounting records in order to issue an "opinion" concerning the "fair presentation" of the financial position of the organization as of a specific date, usually the end of a fiscal year. As part of the annual audit process of an organization's financial statements external auditors usually prepare a "Management Letter", or "Memorandum on Internal Controls". Such documents serve as a vehicle by which the external auditors can bring to the attention of management the fact that certain aspects of operations which came under review warrant improvement in order to enhance the existing level of internal control. Within the audit community these management letters or memoranda on internal controls are significant.

In our review of the memoranda on internal controls we found that a number of important topics had not been dealt with to the satisfaction of the auditors. Of 21 recommendations in the 1981 memorandum only four were repeated in the 1983 memo (dated January 19, 1984) but these were of great importance. They were inventory controls, control of fixed assets, procedures manuals and internal auditing. Inventory and fixed assets represent the majority of the Center's fixed assets and should not be ignored. The Audit Committee should require a special annual report on each of them.

Action on improvements in important financial and administrative areas such as inventory and fixed asset control need not be totally deferred until the computer is operating. CIAT management must not place complete reliance on an ambitious computer conversion which is concurrently addressing other areas identified by the external auditors.

Recommendation:

- 1) CIAT Management should plan to rectify, in 1984, any reported weaknesses in Inventory, and Fixed Assets.
- 2) Greater attention and commitment to action on observations in management letters should be undertaken by both CIAT management and the Audit Committee with the goal of avoiding any repetition of recommendations.

Housing Loans

In recent years many of the CG Centers have found it desirable to provide loans to senior staff for the purchase of both houses and cars. Two sources of funds have been used - working capital or bank loans. Interest charges to the borrower are at, or above the cost of borrowing by the Center so there is no direct cost to the Center or to the Donors.

In most, if not all cases, borrowing from a bank is required from time to time. These loans are inevitably unsecured call loans. Initially not all of the Centers took available precautions to minimize the Center's exposure to financial risk. These measures include valid and registered mortgages held by the Centers (these should be first mortgages but are sometimes second or third mortgages of doubtful real value), full life insurance on the holder of the loan with the Center as direct beneficiary, and other measures, some of which are peculiar to the host country.

The risks of having the bank loan called or of having one of the loan recipients default on payments are not negligible. There are probably few Centers that have prepared emergency plans to deal with such a situation.

CIAT has been operating a housing loan scheme for several years with satisfaction to the staff and no reported problems. We were assured that protection for CIAT in the form of registered mortgages with firm repayment schedules and adequate insurance are in place for all loans. The EMRT commends this initiative.

Loans and repayments are in US Dollars. Sale or rental of property is usually in Pesos. Continued devaluation of the Peso is likely. Borrowers should be warned that repayments may, in the future seem unduly onerous if the value of their property in US Dollars declines.

In 1981 ten members of CIAT senior staff began planning for the construction of a twelve storey apartment building in Cali using personal housing loans that would meet the policies already established by the Board. The Minutes of the April 1982 meeting of the Board of Trustees record their approval of the proposal that CIAT purchase two units for resale after completion of the building (now called Edificio Maitama). Since then one apartment has been sold to a non-CIAT owner and CIAT has agreed to finance a third unit.

On 1 April 1984 the expenditure on the building totalled \$1,073,714 and the estimated total cost was \$2,123,711. The owners had paid a total of \$361,813 from their own funds and \$388,066 from their CIAT housing loans. CIAT had paid \$228,132 and \$95,903 had been received from the sale of the one apartment.

At completion the contributions will be approximately:

Owners personal funds	\$400,000
from CIAT loans	666,000
CIAT (for three apartments)	470,000
Apartment sold	187,000
Peso loan - first mortgage	<u>450,000</u>
	<u>\$2,173,000</u>

The decision to undertake such a project was not made lightly. The prospective owners must have balanced pros and cons and decided that the venture was of such potential value to them that the risks should be accepted.

The EMRT do not wish to question the decision to erect the building but merely to comment on two aspects of the management of the Maitama project.

- 1) Actual construction is being done by a Columbian company formed by the prospective owners to contract for the construction of the building on their behalf. A senior CIAT employee who sat on the Board of this company to represent the interests of CIAT was himself the prospective owner of one of the apartments. (When this potential conflict of interest was pointed out, it was immediately corrected by appointing another person to represent CIAT.)
- 2) The period of construction of any building is a time of uncertainty during which financial problems are particularly likely to occur. The need to protect CIAT's interests and to limit its financial exposure are especially acute. We could find no evidence that this need is being addressed. We were assured that no direct life insurance protection was in effect to safeguard CIAT's advances. The participants' normal protection through IIE was deemed to be sufficient. We did not receive adequate information about planned mortgages, insurance on the structure, interests of the builder and his employees etc. during construction.

The information available to us did not provide the quality of reassurance that the Board should demand. (Addendum. Since this was written further information has been supplied and other actions taken to correct the situation which now seems to be satisfactory. OMS May, 1984).

Recommendation:

CIAT management prepare a full, detailed, and complete study and presentation to both the Audit Committee and the Board of Trustees with respect to CIAT's financial commitments to the project, the risks that are involved and the measures that have been taken to minimize these risks, especially during construction. This should include details of all mortgage and insurance arrangements with interest rates, premium costs, etc. An independent legal opinion should be obtained to make sure that all reasonable protective measures are being taken.

The Nominating Committee

Recommendation:

The Nominating Committee consists of the Chairman and Vice-Chairman of the Board and the D.G. This composition is anomalous. The Chairman of the Board may be eligible for re-election, in which case he should not serve. The Vice-Chairman may well be a prime candidate for the Chairmanship so he may also be unsuitable as a member. The DG is both a member and an employee of the Board so his membership is questionable.

The simplest solution is to have a three-member committee chosen by the Chairman of the Board from among the long service members who are not candidates for the Chairmanship. No two members should be from the same country.

The Chairman of this committee, assisted by the members should privately and individually consult each member of the Board so that he can be certain to present to the Board a proposal that meets the wishes of the majority of the Board.

The present nominating Committee consisting of the Chairman of the Board, the Vice-Chairman and the Director General might continue to function to propose new Board members, a function for which its composition makes it very suitable.

Secretary to the Board

Paragraph 55 of the Minutes of the April 1-2, 1982 meeting of the Board defines the duties of the Secretary and provides that he be appointed by the Board for two years once renewable.

Recommendation:

The Assistant to the DG is in an ideal position to be Secretary to the Board. The prohibition to renewing his two-year term should be removed. He should serve for an indefinite term at the pleasure of the Board.

Board Minutes and Papers

The Board and its Secretary are commended on the excellent minutes that are kept. All relevant papers are kept with the Minutes and an index of Resolution is available.

Recommendation:

The task of tracing topics through the Minutes would be greatly facilitated by two simple additions:

- 1) Number all Board meetings consecutively. Each Committee would have its own separately numbered series of meetings.
- 2) Use a suitable code to identify all papers that are presented to, or discussed at, each Board or Committee meeting. The codes should be used on the Agenda to precisely associate each paper with the correct Agenda item.
- 3) A list of members present and members absent should appear on all Board and Committee Minutes.

Mandate

At its meeting in April 13-15, 1983 the Board adopted a new statement of the objectives, strategy and mandate of CIAT. The EPR will no doubt contain a detailed commentary on this mandate.

The mandate contains some very important management implications. It contains a world-wide responsibility for Beans (Phaseolus vulgaris) and Cassava (Manihot esculenta) and Tropical Pastures and a regional responsibility for Rice. The pursuit of the global mandates is already requiring extensive outposting of staff and starting of new activities in unfamiliar parts of the world. This will require growth and adaptation of the management in at least three obvious ways.

- 1) Careful coordination at the Director and Program Leader level to integrate the efforts of the Director of Crops Research (DCR) and the Director of Resources Research and International Cooperation (DRRIC).
- 2) Better integration of the work of the Director of Finance and Administration (DFA) into the planning and operation of all outposted units and in providing the complex logistic support that will be needed.
- 3) Detailed financial reporting that will support both planning and expenditure control at the level of outposted units and of projects.

The problems of decentralization at CIAT must not be underestimated. The management difficulties created by outposting increase rapidly with the number of programs involved. CIP with one commodity program is relatively easy, CIMMYT with two is more complex and CIAT with four is a challenge.

Regional political pressures to adapt priorities to local needs will be more frequent and many national programs will expect CIAT scientists to be prepared to help with any of the four commodities.

International Status

Recommendation

CIAT, in common with most of the IARCs, does not have adequate status as an international agency. The increasing decentralization that is already occurring has led to some questioning of CIAT's status and this could become serious. Therefore the attainment of an adequate agreement defining and ensuring its international status both within Colombia and around the world is one of the most important management issues facing CIAT today. The team has looked quite carefully into the present state of negotiation on international status and has no useful comments to add. We share with CIAT management the feeling that the lack of international status is already causing problems both within Colombia and abroad. The growing international involvement of CIAT will undoubtedly make this problem worse in the future, thus making the need for a stable agreement both urgent and important.

If the problem cannot be solved by a suitable agreement with Colombia then an attempt will have to be made to find two Sovereign States who would agree jointly to create CIAT as an international agency that could then negotiate an agreement with Colombia. Possibly Mexico and Colombia would do this for both CIAT and CIMMYT.

CHAPTER II. THE DIRECTOR GENERAL AND HIS INTERNAL COMMUNICATIONS AND SENIOR STAFF MANAGEMENT

The Director General

Dr. John L. Nickel has been Director General of CIAT since late 1974. Under his able guidance the program of CIAT has been almost completely changed and the basic scientific organization has evolved into four interdisciplinary research teams. The budget in current dollars has grown from US\$7 million to more than US\$20 million. Dr. Nickel is a capable, industrious and dynamic leader and, since the present organization is largely his own creation, he is clearly in touch with every bit of it and is the acknowledged leader for everyone. Even though he retains the final word on many important decisions, including senior appointments, his management style is more decentralized than many in the CG system. Nevertheless, on the scientific side he has achieved a remarkable degree of participatory democracy. It does appear to us that the scientific planning really comes to a considerable extent from the bottom up. However, the EPR will no doubt comment on this at greater length.

The DG has a lifelong and pervasive commitment to excellence. If a thing is worth doing it is worth doing well. This is obviously the correct guiding principle for a research organization. The best in research is of lasting importance and the second best is soon forgotten. Under Dr. Nickel the whole of CIAT is committed to producing the best and not the second best. The report of the EPR shows that this goal has been achieved in many parts of the scientific program. Some of the administrative and financial side does not quite measure up to the DG's standards and he is striving to improve this situation.

Internal Communications

The task of CIAT is an exceedingly complex one. Funds are short and the demands on the Center are increasing. Everyone is fully occupied and there are no backup people in any area. Even if staff were freely available research cannot be well run by a rigid hierarchical organization. In an effective and productive research organization where staff are spread very thinly close communication at many levels is of critical importance. There is an obvious need for a flexible and effective communication network to ensure that work is well coordinated, resources are efficiently used and there is no unplanned duplication. If communications are adequate all this can be done without a rigid bureaucratic structure provided there are enough rules to provide a framework for orderly action and control. The Director General sees good internal communication as one of the key elements in the success of the Center. He personally participates in the network in many ways. (His channels of communication with the Board have already been described.) Apart from a generally open-door policy, frequent visits to field workers, and participation in both formal and informal meetings and social occasions of all kinds, the DG operates through the following arrangements.

a. Monthly staff meeting. This meeting is held regularly at intervals of about one month. Attendance alternates between the senior staff only and the principal staff which includes all senior scientists plus the General Administrative Staff (GAS). Because this meeting is relatively large it is not a good place for dialogue and usually the emphasis is on the DG reporting to the staff about activities of importance to the Center.

b. When possible the DG has lunch with the Directors each Monday. At monthly intervals the Program Coordinators and Section Heads are added to this luncheon. Also the offices of the DG and the Directors are closely grouped on one floor.

c. Although he meets most of the scientific staff on other occasions during the year, he makes a point of interviewing each one privately approximately once a year. In January and February he tries to see two scientists per day for about one hour each. Not surprisingly this meeting has come to be called "the confessional."

d. The DG is chairman of the Administrative Policies Committee. This Committee meets to advise to DG on administrative policy matters, especially those affecting the senior scientific staff. In order to provide an input from levels below the Directors membership includes one person elected by all the senior staff and one program coordinator elected by his fellow coordinators. In addition to these Committees and meetings in which he personally participates, the DG has several organized channels for written communication with the staff:

- 1) every staff member who travels outside Colombia must submit a trip report soon after his or her return. The DG reads each one of these and makes written comments on them;
- 11) there is regular circulation of copies of their outgoing correspondence between the DG, the Assistant to the DG, and the three Directors.

The EMRT commends the DG on his comprehensive communications network and on the effort that he makes through it to maintain a lively team spirit in the Center.

In addition to these Committees on which the DG sits there are many more that deal with various aspects of communication or coordination within the Center. Of these the most important is the Leadership Group which consists of the three Directors, four Program Leaders, two of the Section Leaders (Training and Communications), the Executive Officer and the Assistant to the DG as Secretary. The DRRIC is the Chairman.

The Group is directly advisory to the DG. He considers their recommendations and promptly gives his reaction in writing. He nearly always accepts their proposals and gives his reasons if he turns one down.

The Group deals with a wide variety of CIAT wide or inter-program problems including approval of new Special Projects, allocation of Visiting Scientist and post-doc positions, sharing of resources and grading and promotions, especially of Research Associates and Assistants.

The titles of the other Committees are sufficient to explain in a general way their purpose. They are:

Agricultural Production System Coordination Group

ARCOS (The internal CIAT newspaper)

Carimagua Consejo (CIAT) (The CIAT component of the joint CIAT/ICA Committee that manages the Carimagua Station)

Electronic Processing Committee

Field Operations Committee

Landscape Advisory Committee

Escalafon Committee (Classification of Positions)

Research Services Committee

Publications Committee

Space Assignment Committee

Community Relations Advisory Committee.

While the existence of these committees no doubt contributes to the overall sense of participation in the management of the Center, it also provides the possibility that committee deliberations may detract from the exercise of their authority and responsibility by CIAT staff who are responsible for the issue in question. A quick review of the agenda for 1983 for both the Administrative Policy and Leadership Group Committees indicates a number of instances where topics might well have been decided upon by existing levels of management. The EMRT suggests that CIAT management look critically at the subject matter which is addressed by any management-oriented committees it may establish so as to ensure that CIAT managers continue to exercise their delegated responsibility and authority.

CIAT management recognizes that Committees are essential but can also become an inefficient way of using the time of senior scientists. As a result, the list of these Committees is carefully reviewed at least once a year. Many Committees have been eliminated in the past. In some cases they have been replaced by other Committees to deal with new problems as they arise.

The present mechanism seems to be working very well but management is wise to be continually questioning it. This is an area where more is not necessarily better.

Policies and Procedures for Senior Staff

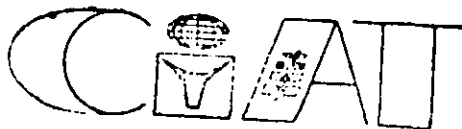
The method of dealing with the selection and especially the promotion of senior staff in CIAT has been built around the DG's personal philosophy of research management. Each of the four research programs (beans, cassava, rice and tropical pastures) is carried out by a single research team lead by a Program Coordinator. All of the required scientific disciplines are represented within the team. There are no ranks except that of Program Coordinator. In all except the Tropical Pastures Program, the Coordinator also contributes to research in his own discipline. In beans, the Coordinator is an entomologist, in cassava a physiologist and in rice a breeder. Unlike the majority of scientific organizations there is no subdivision of the Center by scientific disciplines. The entirely rankless structure of salary and benefits is an essential concomitant of this philosophy.

A detailed Manual of Policies and Procedures for Senior Staff is kept up-to-date and is readily available. Details will not be repeated here. The Manual does not describe the methods for selection, evaluation, and setting of salary increases. (Since there are no ranks there can be no promotions.)

The process of recruiting was reviewed and found to be well organized. The main initiative comes from the Program Leader and his Director but scientists in the appropriate discipline are involved and the DG finally makes the appointment.

A starting salary is fixed by establishing for each candidate an index number which is based on educational level, relevant experience, age, and some allowance for established reputation. No allowance is made for rank within CIAT except for the Directors and in a different way for Program Coordinators. The initial appointment is for a two-year probationary period. Each appointment is reviewed at least six months before the end of the two-year period, and any reappointment is to a "continuing appointment". Because it has no assured source of revenue CIAT cannot grant tenure. However, a continuing appointment is an indication that CIAT management intends to keep the employee indefinitely and will give at least one year's notice of termination of employment.

The overall personnel management of senior scientific staff is from the DG's office where the records are kept. All of the senior scientists are paid through the IIE. The DFA deals with IIE and keeps the records of financial dealings with each employee. A new assistant is being added to his staff to concentrate on this work. The DG uses the Administrative Policy Committee which includes all of the Directors as his advisors on senior personnel policy matters.



Annual Evaluation

The performance of each senior scientist is formally evaluated by his immediate supervisor (Program Coordinator or Section Head) in preparation for the annual salary review. This evaluation is discussed with the Director and goes to the DG but is not discussed with the employee. In most cases the employee's strengths and weaknesses have already been discussed with him by his supervisor.

During the preparation of the budget an estimated total percentage for senior salary increases is included. This is approved by the Board. Within this limit, maximum and minimum increases are set and individual salary increases are calculated using a formula which has been evolved over the last several years. Over the five years from 1979 to 1983 average salaries have increased from just under US\$28,000 per year to US\$36,000 a year. Although there are no promotions, the results show that an outstanding scientist does, over the years, achieve a substantially higher salary than the average.

During the process of salary review the current salary positions of individual senior scientists within the group is clearly apparent on a scatter diagram in which the index number for each employee is plotted against his present salary. In addition, a bar chart of the frequency distribution of increases is available to assist the DG in making his final salary decisions.

Through the annual meetings of the DGs, the IARCs have evolved a uniform system for assigning index numbers to individuals and are sending the resulting scatter diagrams to IIE for analysis and interchange between Centers. Analysis of the results for 1982 shows that CIAT is slightly below average at the low end of the scale and slightly above throughout the rest of the scale but is not the highest in the System.

The benefits for senior scientists are fully described in the manual. Most of them fall well within the normal limits for IARCs and so will not be described in detail. A few are unusual mainly due to the nature of the agreements with the Colombian Government.

Each senior scientist is permitted to import one vehicle for personal use on arrival and every four years thereafter. The employee pays for his vehicle but it is registered in the name of CIAT. In addition, each senior scientist is given a CIAT vehicle which is used for going to and from work. If this vehicle is used for personal purposes the scientist must pay a mileage charge. In addition an extra vehicle is assigned to a program each time that a senior staff member is added. Senior Colombian employees are entitled to all the benefits of senior expatriates except that they are not allowed to import a vehicle. In lieu of the duty-free vehicle they are supplied with a family vehicle by CIAT. Expatriates coming to Colombia for the first time are permitted to import their household goods duty-free. In addition, all senior employees are permitted limited importations of household goods, food and liquor each year.

Many of the senior staff live in rented houses and apartments in Cali. A few own their own homes. All senior staff are paid a fixed housing allowance which depends only on the size of their family. No furniture is supplied. The allowance is adjusted each year and is planned to equal the average payments for rent and utilities for an unfurnished house. There is no furniture allowance. The present maximum is US\$750 per month for a family of four and has not been increased for two years. There is also a small group of senior, locally hired staff who are mainly Colombians who are classed as General Administrative Staff (GAS). They are paid locally in Colombian Pesos and are allowed free use of a CIAT car, as are post-docs. There are at present 10 staff positions classed as GAS.

The Education Allowance at University level provides for transportation but not fees. This has been seen to be fair since it puts a family that is away from their own country in about the same financial situation as they would be if they were at home. In recent years this situation has, in many countries, changed drastically. Fees for out-of-country or even out-of-State students are often several times those for residents. If a CIAT staff member has been away from his or her home country for some time they may have lost their resident status and have to pay out-of-country fees. The EMRT was informed that this item is on the agenda for the next meeting of the DGs.

In spite of widespread encouragement, we received virtually no complaints about personnel administrative matters from the senior staff. The unusual rankless personnel management system seems to be well adapted to the interdisciplinary team approach and to minimize inter-personal comparisons of remuneration. Expatriate staff seem to be living comfortably in the Colombian community and find schools and other social amenities adequate. Since we had little opportunity to talk with wives this may not be an accurate assessment of the real situation.

Management Training

The EMRT was asked to consider whether management training would be desirable for senior management at CIAT. As a result of our visit, the Team feels strongly that management training would be extremely useful in CIAT in both Research and Finance and Administration. The needs are different in the two groups but even short courses, if suitable, would not only improve their performance in their own jobs but would also make each understand the other's problem more clearly.

Inquiries at CIP last year indicated that the staff members there who had taken management courses had not been greatly impressed by their relevance to CIP's problems. The problems of the IARCs are so different to those of business and industry that this is likely to be true of all available courses. Those designed for training in the management of non-profit organizations may be more suitable.

The accumulating experience of the management reviews is revealing an urgent need for better and more widespread management skills throughout the CG system. It is therefore strongly recommended that the CGIAR investigate the possibility of organizing a management training course with a curriculum tailored to meet the needs of the Centers.

Experience elsewhere shows that it is feasible and not too costly to mount such courses on a temporary basis. Consultants from one of the good business schools can help in planning a curriculum in cooperation with a Committee from the IARCs. The teaching of the basics of management would be done by university staff supplemented by specialist contributions from other consultants and by staff and even trustees from the IARCs. There should be no difficulty in renting suitable accommodation from a university.

Selected students from national programs in developing countries would profit equally from the course and would add greatly to it by their contributions to case studies and seminars.

Donors would probably be attracted by such a proposal. The International Development Research Center has already held courses in the Management of Research in Food Technology. Dr. J.J. Hulse should be consulted.

In each Center the Management Course should be a part of a coherent program of staff development at all levels. This would include sabbatical leave, scholarships, specialist courses, etc.

Nationalities of Senior Staff

Sixteen nationalities are represented in the senior staff of 58. They are divided thus:

Latin America	38%
Anglo America	26%
Europe	24%
Australia	7%
Asia	5%

There are five women - one each from Australia, Colombia, the United Kingdom and two from the United States.

CHAPTER III. FINANCE AND ADMINISTRATION

The Director of Finance and Administration is Andrew V. Urquhart. A diagram of his branch is shown on the fourth page of Appendix III. The total staff complement is about 300 and the annual budget (as revised for 1983) about US\$5.5 million.

Administrative Procedures Department

In response to a suggestion by the external auditors of CIAT, management undertook to commission a "diagnostic" or general study of the administrative and financial areas of CIAT operations. This study was conducted in 1983, and one of the main issues highlighted by the study was the lack of written procedures. As part of management's response to this issue an Administrative Procedures Department was established within the office of the Director of Finance and Administration. This Department is presently under the direction of a Head and is composed of four analysts and a secretary.

For the period from July 1983 to February 1984 the following work has been completed:

1. purchasing manual (local, food, importation, customs);
2. payment of purchases;
3. warehouse manual (proceedings, dispatches) - 60% complete;
4. importation control (on accounting and payment); and
5. travel advances/travel expenses.

The purchasing manual has been issued and is now being updated. Future tasks, in coordination with the Administrative Systems Department, include the areas of treasury, inventories, and maintenance. Management foresees the integration of these two Departments in the third quarter of 1984.

The EMRT concurs with the importance of documenting procedures clearly, concisely and in a usable form so that the procedures outlined can actually be understood and followed by the staff concerned. However, the procedures which are currently being developed by this Department represent the ideal and may differ unnecessarily from those in use now.

Recommendation:

The Director of Finance and Administration should re-assess the approach, methods, and activities of his Department in order to ensure that there is an effective evaluation of procedures as actually practiced including possible streamlining of the processes involved, and balancing these with the need for an appropriate level of internal control. This would be seen as a concrete example of trying to minimize bureaucratic procedures but at the same time ensuring that adequate internal controls exist. It would also allow operating staff to contribute their ideas, thereby resulting in more efficient and effective operations.

Administrative Systems Department

For some time now CIAT management has recognized that the Center's current computerized financial system is not meeting its management information requirements. The Administrative Systems Department was created in August 1983 to meet these needs, and also in response to recommendations by Peat Marwick Mitchell. It is currently composed of a Head, four analysts and a Computer Operations Unit.

This Department has ambitious plans to develop fifteen applications, e.g., general ledger, payroll inventory, budgeting, etc., as well as the partial conversion of some of the current batch processing applications from the IBM 4331 to the IBM System 36. This is to be achieved by applications developed internally by the staff analysts as well as by the acquisition of various software packages for adaption to CIAT operating requirements.

In view of the history of delays and problems experienced in the past the aim is now to get the new system operational as quickly as possible. Center management has also committed itself to improve internal controls in a number of areas identified in the management letters issued by CIAT's external auditors.

The present Head of the Administrative Systems Department appears to be well qualified to meet these challenges, and is well supported with staff analysts. The Department has acquired some of the required applications packages and has been testing these on IBM System 36s available in Cali. There has already been delay in the delivery of the hardware. Training courses are being given to administrative and financial personnel. Internal Audit is reviewing the adequacy of controls within the proposed computer applications.

The EMRT is concerned that various financial and administrative units appear to be the "prime" users of the new System 36. While these units may be the initial users of the systems, the EMRT believes that the various levels of Center and Program management are equally important users. These latter users have not been adequately consulted in the design stage of the system itself. The Team is concerned that the adopted approach could well result in an EDP operation which would be seen by the Program management as "their" system as opposed to "our" system.

After assessing the operations and plans of this Department the EMRT has a number of recommendations:

Recommendations

A formal consultative process should be established which would require the Administrative Systems Department to communicate with and receive feedback from the various management "users" within CIAT, i.e., DG, Directors, Program Coordinators, etc.

CIAT management should develop a contingency plan in the event that complications or unforeseen delays are experienced in the implementation of the new System 36. Such a plan is important if the credibility of the Administrative Systems Department is to remain high.

The "diagnostic" previously mentioned included a rather detailed approach to the implementation of computer systems and their applications. The Department is still relatively young and as such has not yet developed standard operating policies and procedures to guide its own staff, nor to allow Center management to establish pertinent operating policies. Since certain of the proposed applications have been identified for internal development, the Department should prepare policies for the development of computer applications for approval by Center management. These would include such items as: Requirements Definition, Program Documentation Standards, Program Specifications, Programming and Testing, etc.

In view of the complexity of the project as well as the corporate importance, appropriate outside EDP services should be contracted in order to provide an additional level of technical expertise and experience along with further assurances in the review of necessary controls and with the implementation process. The formal involvement of CIAT's external auditors in this process should be considered.

The EMRT perceived that high expectations are being developed, both within the financial and administrative areas, the Research Programs and senior management. Given the past history of delays in the implementation of any new computer system, we believe that these expectations may not be realistic.

The EMRT suggests that CIAT management take the following into consideration as it plans the introduction of the System 36.

- 1) In converting from the present IBM 4331 to the System 36, the administrative and financial areas will be embarking on a completely different technology, i.e. from batch mode to primarily on-line. There are a number of significant differences between these two operating modes, not only of internal controls, but also in terms of changes to work flow, procedures, and decision making. We are not sure that Center management has made adequate preparation for these changes.

- 2) Concurrent with the introduction of the System 36 are plans to introduce changes to current procedures in order to address a number of the weaknesses in internal control identified by CIAT's external auditors. These plans will add to the difficulty of adapting to the new system. A more logical approach would be to first undertake any required improvement to current procedures and then to incorporate these in the new software applications to be developed or purchased.

It is suggested that the current Department title of "Administrative Systems" be changed to either "EDP Department" or "Management Information Systems."

Controller's Office

The Controller Alejandro Rebolledo has a staff of 27, and a preliminary 1984 operating budget of US\$261,000. The primary responsibilities of this office are to provide basic accounting services, one of the most important being the issuance of monthly financial and management reports. This key function is undertaken by the Accounting Section with a staff complement of 17. The Treasury Section, composed of two cashiers, a secretary and an assistant has as one of its key functions the forecasting of cash flows which permit the Controller to make investment decisions on any funds in excess of short-term operating requirements. This is one of the key revenue generating activities of CIAT, with total interest income in 1983 reported at US\$407,000. The Payroll Section, with two staff members, is charged with the responsibility of controlling and recording the payment of bi-weekly payrolls to locally hired staff. Finally, the Budget Section, again with two staff members, provides assistance in the areas of budget development and budget management.

The Controller has been with CIAT for 11 months and has a positive attitude and a number of new ideas in meeting the various demands of his position. In general we found this Office to be functioning well, and while the need for change in a number of procedures is accepted, action is being deferred pending the arrival and installation of the new System 36. (It arrived in mid-March.)

General Services

The following service units are under the direction of Mr. J.A. Cuellar, the Executive Officer: a) Property Management; b) Personnel Office; c) Travel Office, d) Bogota office in charge of Government relations; e) Maintenance; f) Carimagua; g) Food and Housing and Visitors Office. The overall function is to provide to Senior Staff the support they require for their work, and to create an atmosphere of respect and mutual confidence. The main field of action is at the CIAT headquarters in Palmira.

The gross area of buildings at Headquarters (Palmira) is 42,000 m² of which about 50% is airconditioned. The whole complex is served by about 26,000 m² of roads and parking areas and by 10,000 m² of gardens. The physical plant includes resources to run these services, maintain all buildings and grounds and provide security (there are 36 watchmen in charge of security who work in different shifts).

In summarizing its observations made on the sections under the Executive Officer, the EMRT wishes to express its good impression of the quality and dedication of staff as well as the services being performed.

- 1) The Property Management Unit has made a very complete study of its area and we believe its insurance portfolio, control of vehicles, and other functions of administrative assistance are adequate. CIAT and its employees are well protected at a reasonable cost according to market conditions.
- 2) The Human Resources section performs one of the most difficult assignments in any organization--dealing with people and their individual problems. The section is highly regarded in CIAT, and has achieved a very positive attitude of cooperation. It is performing its difficult task exceptionally well.
- 3) The Travel Office performs a very good practical and efficient service for CIAT staff, trainees, Conference participants and other visitors.
- 4) The EMRT believes that the good relations with the Government of Colombia are due, at least in part, to CIAT's highly capable personnel in the Government Relations Section who attempt positive approaches to solve difficulties and obtain good results.
- 5) The good running order of equipment and installations in CIAT testifies to the success of the Maintenance Section in providing quality service.
- 6) The functions of the Carimagua management are performed satisfactorily even though this station is faced with problems of location, isolation, and the lack of good road transportation.
- 7) Food and Housing performs its functions in a very professional way obtaining the best return based on available resources.

Further details concerning some of the more important of these functions and others under the Executive Officer follow.

Property Management

This Office is in charge of managing all types of CIAT insurance policies, the control of CIAT's vehicles, and the sale of unusable assets.

Human Resources

The fundamental objective of this Unit is to facilitate the development of CIAT's local staff members through adequate personnel administration which includes recruiting, initiation of work and resignation of personnel. Its formal philosophy is based on respect for the human being combined with equal rights and opportunities for all workers. The Unit's fundamental purpose is to try to find the most qualified person to work in each CIAT position. The social welfare policy is oriented towards the worker and his family through CIAT participation in housing, medical care, recreation and sports programs. Personnel Office involves a total of 20 employees including a lawyer in charge of legal matters and a physician in charge of the health program.

CIAT personnel administration must abide by a number of conventions: a) Government rules, e.g., Labor Code, Social Security, Taxes, Welfare; b) CIAT's practices including Policies and Procedures Manual, Rank Evaluation, "Escalafon" Manual, and Evaluation and Performance Manual.

As of December 1983 there were 1,212 employees (944 are men and 268 women) divided as follows: in research 117, direct support 502, general support 129, and administration 464.

There is a Labor Union with a total of 426 members. A collective convention was signed effective through 31 December, 1984. The benefits received by the Union are, in general terms, comparable with those obtained by Unions of medium-size Colombian enterprises. Personnel not affiliated to the Labor Union receive the same benefits as those affiliated.

The CIAT salary scale for local staff has 11 categories, every one of which has a maximum and a minimum in pesos which is fixed according to annually salary surveys.

An annual performance evaluation is undertaken to measure individual performance so that salary can be adjusted according to the person's efficiency during the previous year.

In 1982 a housing committee was created which unified efforts from CIAT and CRECIAT (Credit and Savings Funds of CIAT's Employees) and a great advance has been made in solving employees' housing problems in Palmira, where 257 houses are under construction.

Medical care is provided for employees by the State and is administered by the Institute of Social Security.

PROCIAT is a medical assistance service for the employee's family. This service is financed with 4% of the monthly payroll, which, by law must be designated for family subsidy.

The EMRT heard nothing but praise for Human Resources throughout CIAT. We are happy to add our commendation.

Maintenance

This Unit has a total of 160 employees, including janitors, electricians, mechanics, drivers. Its objectives is to guarantee the proper functioning of CIAT's equipment and installations, both in their operation and control, as well as in their maintenance. It also operates the motor pool.

Bogota Office

This office is in charge of handling activities and relations with Government institutions and collaborates with Palmira and Carimagua in the purchasing of supplies.

Visitors Office (Under the Assistant to the DG)

It is in charge of preparing programs for visitors and making the necessary contacts with the CIAT staff who visitors want to meet. The number of visitors is estimated at 8,000 per year. In spite of this service, several scientists complained that unwanted visitors caused a serious loss of working time.

Travel Office

The Travel Office is under the supervision of the Executive Office and controls services rendered by a private travel agency which permanently maintains four employees at CIAT.

Food and Housing

This section is responsible for providing meals for all CIAT personnel and visitors, housing for guests, visiting research associates and seminar participants, as well as recreational activities for employees and residents. It has a complement of 63 staff to work in reception and switchboard, kitchen, laundry and housekeeping.

The Food section has the necessary infrastructure to prepare and serve a daily average of 150 breakfasts, 1,200 lunches and 150 dinners. CIAT has fixed its meal price policy with the criteria that personnel with lower salaries receive this service at subsidized prices, while the higher paid staff pay the real cost of the meal. In the laborer dining room the prices are subject to a collective convention with the CIAT Labor Union.

Taking into consideration the above points in 1983 there was a total deficit of US\$502,885 from which is subtracted a CIAT subsidy of US\$364,205, leaving a final deficit of US\$138,680.

The EMRT saw no notices alerting those who use the facilities to planned Emergency Measures to be taken in the event of fire, earthquake or other disaster.

The EMRT commends the Food and Housing Unit on the excellent service that it provides.

Supplies

The Supplies Department which is responsible for CIAT purchases consists of an analyst and secretary assisting the Head and three sections: (a) local purchases; (b) importations; and (c) Warehouse. The total staff is 25.

In 1983 the Supplies Department received 7,512 general warehouse requisitions and 1,819 food requisitions which, added to the purchases for stock, amounted to a grand total of 10,462 requests and a value of US\$6.1 million in purchasing activity, i.e., local, importations, food, petty cash and personal.

The Warehouse is also responsible for sending purchased merchandise to Carimagua, Villavicencio, Quilichao and Popayan.

In 1983 a total of 102 import orders were placed directly, and an additional 779 purchases were handled through UNITEX INTERCORP, an agency established in Miami which, during the last 10 years has handled a large part of CIAT's purchases in the U.S.A.

Imported items must pass through a special process upon arrival in the country including a request for the authorization to "clear" the merchandise through customs, transfer of the merchandise to the customs area within CIAT, nationalization of the merchandise, final review by the customs authorities and handing over of the merchandise to the users.

The purchasing system is not working smoothly at present. A new purchasing manual was written with the assistance of an external consultant and is in use but is being revised by the Administrative Procedures Section. The paperwork has been simplified and the requirements for quotations made more stringent.

Inspection shows that the "housekeeping" in the warehouse is not the best. A very superficial sampling of the Kardex file (which records quantity, location, etc. of items in stock) disclosed some discrepancies.

The value of inventories in the 1983 Balance Sheet was US\$1,550,000. This was up from US\$947,000 in 1982. The change was due to the purchase of livestock in Carimagua (US\$716,000) which was partially offset by a reduction of US\$113,000 in the inventory of supplies, spare parts, etc. We were told that at least US\$200,000 of this is obsolete material that should be written off. The Audit Committee should examine this figure in detail every year.

Supplies in the main warehouse are, in accordance with normal practice, shown as assets. They are not charged to programs until they are delivered. The External Auditors have complained that some of the sub-warehouses where the programs keep their working stocks are too large and uncontrolled and should be brought under the control of the Supplies branch.

Measures that would improve both the performance and the image of the Supply Unit include:

- 1) Delivery from stocks. If inventory records and warehouse organization are in good shape it should be possible to complete delivery from stock within 24 hours or less. A commitment to this practice would greatly improve the local image of the supply branch.
- 2) Local Purchase. Demands for quotations should be tempered with practicality. Cash purchases can be controlled and should not be discouraged in suitable cases.
- 3) Imports. The EMRT was convinced that UNITEX INTERCORP in Miami is performing an important service for CIAT and should not be discouraged. Better two-way communication and consultation will result in better service. This will be greatly facilitated by the use of the computers that are already being installed at both ends. Everyone agrees that no other agent could compete with the prices that UNITEX charges for the many small personal orders that it fills for CIAT staff nor on the operation of the Miami Mail Box, which among many other things delivers books and periodicals to the library.

No import system will ever satisfy the demands of the research workers for speed and accuracy of delivery but better communication to explain difficulties will make them more tolerant.

When the existing supply system is working well CIAT should examine carefully the potential advantages of a radical change in organization.

The suggested plan is to operate the warehouse as if it consisted of four or more stores - one for each of the major Programs and possibly a few more for important users such as communications. Orders would be placed only on demand from a Program or Unit. On receipt the goods would be charged to the Program but held for issue by the warehouse. With the inventory on the computer and with aids such as colour coded bin cards physical segregation would not be essential. Every month each Program would receive a print-out of their stock holdings with a request for re-order instructions.

This system would eliminate unnecessary purchases for stock and minimize unused material since Programs would already have paid for everything that was on hand. It would largely eliminate the need for uncontrolled sub-warehouses.

It would no doubt be necessary to retain a small unassigned miscellaneous inventory that would be carried as an asset on the books but even so the total value of stock on hand should be substantially reduced.

Management Themes

The preceding sections of this report will have given the reader an appreciation of some of the more important issues being faced by the units within Finance and Administration. As a result of the conduct of this review, the EMRT has noted a number of overall management themes which cut across the finance and administration organization and which the EMRT believes warrants specific action on the part of several levels of Center management. These topics include:

Service and Team Philosophy

Delegation of Authority and Responsibility

Special Projects

CIAT Budget System

Revenue Generation

Service and Team Philosophy

The organogram (Appendix III) outlines the units within the Office of Director of Finance and Administration. Unfortunately, the same diagram could probably be used to identify the lines of internal communication and coordination within the function. The EMRT believes that action should be taken to further develop the spirit of service and team cooperation. The term "service" is used here not to imply subordination but rather dedication to a common cause. Too often we have received comments concerning frustrations in attempting to fully exercise one's assigned responsibilities should this require crossing over into other support units, for example financial controls at Carimagua or purchasing procedures at the Bogota office. While the principle of service to the Programs is often mentioned, we have received enough comments to indicate that this principle may not be uniformly practiced at the lower staff levels within each of the Units.

This issue is raised here since it appears to the EMRT that there needs to be a more positive attitude developed within Finance and Administration in order that it may better coordinate its activities in the face of change within CIAT which is resulting from further decentralization of Program operations. The focus of CIAT's Programs will more and more be at sites other than Palmira and the support units must be able to be flexible and adapt their policies and procedures to face this reality.

The DFA will be called upon to lead his staff during this adjustment phase, and he should use every opportunity and mechanism at his disposal to reinforce this principle of service to the programs and the concept of a "finance and administration team". This includes, of course, cooperation and balance between the Program and finance and administration "teams."

The DFA should be encouraged to continue his initiatives and those of his staff which have begun to "reach out" to the Programs. Suggestions include personal discussions and meetings with Program personnel in their offices, a positive attitude in all contacts with Program personnel, supporting the ingenuity and imagination of staff members in developing simpler ways of administering the complex functions of the Center, developing incentives based on delivery of services, being receptive to constructive criticism expressed by Program personnel, etc. The old adage that "actions speak louder than words" would appear to be appropriate here. These efforts should be supported by senior management, including fellow Directors, in that their support is key to the reception offered to the efforts of the DFA and his colleagues.

Delegation of Authority and Responsibility

The present structure in Finance and Administration was established in a reorganization which occurred in 1982 when the position of Director of Finance and Administration was created. Following this decision, and pending the arrival of key personnel (a Head of Supplies and a Controller), the DFA had to assume a number of key responsibilities other than his former duties as Controller. With the arrival of these new staff, as well as with the passage of time, there has been a gradual re-delegation and re-establishment of levels of responsibility and authority with the current incumbents. The DFA should accelerate this delegation of his former responsibilities to his management team. There should be a conscientious effort not only by the DFA but also by his fellow Directors and the DG to ensure that any issues which arise are in fact handled by the appropriate staff level within Finance and Administration, as opposed to continuous reliance on the DFA. This action is necessary if the DFA is to properly meet his corporate responsibilities in the long-term planning and operational issues faced by CIAT.

Special Projects

Special Projects provide CIAT with substantial resources for support of its programs from sources separate from those that supply core funds through the CGIAR. CIAT seems to be using Special Project funding in a positive way and the volume of such funding has been growing:

1981 -	\$2,091,000
1982 -	2,313,000
1983 -	2,750,000

In 1983 TAC decided that funds for special projects that were for programs that would be readily admissible to the Centers' Core Program would be classed as restricted core and included in the core budget. This change in policy resulted in the 1983 budget transfer of US\$2,243,000 from Special Projects to core thus reducing Special Projects for that year to US\$507,000. We were told that this was the largest percentage transfer allowed in any Center.

The Board has defined policies for selecting Special Projects and deputed responsibility for cases that meet the requirements to the DG. Special Projects are used for work that is closely allied to existing core programs or for financing exploratory work aimed at extensions of existing programs into areas that are new either geographically or scientifically.

In April 1981 CIAT adopted a detailed procedure for Special Projects (DIR-396). This seems to be a comprehensive and well thought out procedure. A few features deserve comment.

- 1) Anyone in a program can propose a Special Project and pass it through research channels to the DG for consideration.
- 2) If the proposal appears appropriate to the DG it is passed to CIAT's Leadership Group for consideration. Thus the other Programs and the DFA are involved at a very early stage. Ideally, the first detailed budget is prepared by the DFA but the appropriate Director conducts the negotiations with the Donor. Any overhead budget item is based on the "CG Formula" which includes as much direct costing as possible to ensure that percentage overhead is kept low but that total charges fully cover cost. In some cases this method of costing may seriously understate costs if depreciation is not in some way included in the unit cost of expensive and short lived equipment. The present CIAT policy is to attempt to recover 20% for on-site (Palmira) research projects, and 10% for off-site locations. In practice, the actual rate used is more a reflection of the negotiating prowess of the CIAT personnel involved.
- 3) Most Centers seem to feel that the task of meeting the donor's demands for both program and financial reporting on special projects are arduous if not unreasonable. In CIAT the onus for ensuring that both technical and financial reports are sent on time is usually placed on the DFA.

The EMRT commends CIAT's selection and administration of Special Projects.

Recommendation:

The DFA should develop a set of policies and guidelines with respect to financial and administration issues to be covered in any proposed contractual arrangements involving CIAT. Such a document, once approved by CIAT management, should be distributed to the senior scientific staff for

their use if and when they wish to pursue particular research proposals. Such an approach would minimize delays while financial or administrative issues are clarified at later stages, as well as providing an opportunity for finance and administration to exhibit their "service and team" approach in support of CIAT's scientific endeavors. Included in such guidelines would be topics such as standard cost of scientific personnel, logistics for the transfer of operating funds, inclusion of any international privileges, the treatment of Special Project equipment, guidelines on the application of CIAT's overhead charge on Special Projects, etc.

The DFA should develop an appropriate orientation program for any Special Project personnel who are to be posted overseas. Sufficient time should be allowed for such an orientation in order to ensure that staff are properly and fully prepared to take up their duties and understand the extent of their delegated authority regarding the use of CIAT or Special Project funds.

CIAT Budget System

In the last few years CIAT's budget system has undergone a fundamental change. This was brought about by the difficult funding situation and the no-growth or reductions in budgets that this has entailed.

CIAT gave us details of the budget procedure that had been evolved. It is an orderly method for proceeding from program plans to a complete budget. Unfortunately, the uncertainties of funding and the lack of growth have made this system unworkable.

Consequently, CIAT's budget system is, as in the other Centers, one of developing operating budgets from the "top down". Another factor which has affected the way budgets are prepared was CIAT's Long-Term Plan. This document presents detailed analyses and projections of changes in the direction and staffing of CIAT's research programs, support and administrative units. Current budget proposals therefore have become proposals as to when and how to implement projections in the Long-Term Plan and proposals of how to handle possible budget reductions.

The present systems start with the assignment by the CG Secretariat and TAC of figures for forecast revenue at "bottom of the bracket" and "top of the bracket" levels. There are then discussions of what must be cut from the Long Range Plan to meet the "bottom of the bracket" together with a "fall back list" in case revenue is even lower and a "forward" list if the "bottom" "bottom" is exceeded. All of this involves extensive consultation and is finally put to the Board for approval if time permits.

The EMRT concurs with CIAT's concerns about the publication of "fallback" lists in public documents, either as part of the formal CIAT budget document, or of those prepared by the CG Secretariat or TAC. This practice has a demoralizing effect as well as impeding the momentum of research work when staff suddenly become aware that their position or program is on such a list. Even should additional funding be eventually obtained, the information has already been released and the damage done.

CIAT uses, for operational purposes, an approximate budget level for the year based on the latest funding information and estimates of possible additional funding as the year progresses. Accordingly, financial administration and Programs and Units prepare revised "working" budgets to conform to the projected level of funding. Details of this "working budget" and instructions are sent to each individual responsible for a portion of the budget.

Notwithstanding the complex nature of the budget process as described, the ultimate result is a budget which is well documented to meet both CG Secretariat reporting requirements and to some extent those of CIAT management itself. This process should reach even higher standards if current plans are carried out, especially those involving more personal contact between Program personnel and Finance representatives in order to more clearly describe the overall budget process, requirements, and any mutual problems encountered by the parties. The EMRT wholeheartedly endorses this type of initiative and communication. We have put forward here a number of ideas which might assist CIAT management in ensuring that the budget process remains one that is well in tune with its operating requirements.

Recommendation:

The budget document should clearly portray CIAT program activities which are being undertaken at sites other than headquarters, e.g., research stations in Colombia, as well as the Program activities which are occurring around the world. This information would give a more accurate picture of the extent to which decentralization within the Program areas is being achieved.

The program and budget documents published by CIAT contain detailed and informative presentations on the scientific programs and their plans for the upcoming year. Information on a number of research support units is also included. There is very little presentation of operational plans for CIAT's administrative and general support functions which represent a significant proportion of overall expenditures. For example, in terms of the 1983 budget (current estimate) these elements represent some US\$6 million or 28% of total core budget operations. Further information on planned activities in these areas would be an opportunity to more clearly describe the administrative and support functions which are required to coincide with the Program initiatives described earlier in the document. This would also further provide a useful internal measure of effectiveness when CIAT management does a follow-up to see how successful administration and general support services have been in meeting their announced plans.

The internal CIAT "working budget" is presently programmed to subdivide approved budgets on the basis of equal monthly amounts. Many functions do have a fairly uniform monthly rate of expenditure, others have unpredictable variations and others show remarkably consistent annual cycles. In these latter cases it can be very useful to subdivide the monthly budget on the basis of this past experience.

Revenue Generation

CIAT has several self-supporting activities, in which an effort is made to break even, and several other activities which are planned to generate income in excess of the extra cost incurred. CIAT endeavours to generate income from outside sources only where a minimum of additional expense is involved. Activities falling under these headings include:

<u>Self Supporting</u>	<u>Income Generating</u>
Food and Housing	Farm production
Aircraft operation	Cattle herds
Publications fund	Seed marketing
Seed processing and conditioning	Special Project support
PROCIAT health service	Interest on current surpluses

The number of personnel positions involved in these activities totals 90. The EMRT was informed that the present CIAT financial accounting system is not capable of generating the detailed information needed to make an accurate financial assessment of these operations. Moreover, as with the case of Seed processing, it appears that the administrative systems by which the financial information is gathered, e.g., production information, sales, and invoicing is only marginally tied in with the formal CIAT accounting processes. At the time of our review there had been a recent meeting between the Controller's Office and the Seed processing group in order to clarify and begin properly to organize these working relationships.

A similar situation probably exists for some of the other operations, i.e. that there is only marginal financial information available by which to accurately assess the extent to which these activities are either break even, "profit" generating, or subsidized.

In all of the so-called self-supporting functions listed (except PROCIAT), the actual external income is from transfer payments from normal grants. These expenditures must be regarded as costs and be examined for possible savings with as much care as any other costs.

CHAPTER IV. THE RESEARCH PROGRAMS

Organization

The most recent (February, 1984) organization chart for CIAT headquarters is shown in Appendix III. With a few exceptions, which are discussed below the organization seems well adapted to the functions that it serves. No effort has been made to review all aspects of the organizational structure.

In an organization the size of CIAT it is difficult for one person to handle the DG's job without help. There are two equally acceptable alternatives--one is to appoint a Deputy D.G.--the other is to use an Assistant to the DG. Dr. Nickel has opted for the latter solution and it is working extremely well thanks to the warm, enthusiastic and intelligent approach of the present incumbent, Dr. Fritz Kramer. He does not deal with problems, only with solutions.

Under the DG are three Directors: Douglas Laing, Director of Crops Research (DCR), Gustavo A. Nores, Director of Resources Research and International Cooperation (DDRIC), and Andrew V. Urquhart, Director of Finance and Administration (DFA).

Naturally a great part of the Management Review deals with the work of the DFA. However, there are some important observations to be made on management aspects of the research organization. These will be covered first before proceeding to Finance and Administration.

Until 1982 there was a separate Director for International Cooperation (DIC). Since the resignation of the DIC coincided with a period of a severe shortage of funds, the decision was made to continue with two Research Directors. The present somewhat anomalous organization was the result of this decision. It appears to have been a sound, pragmatic, decision that made the best possible use of the available talent. However, with the rapid expansion of international cooperation that is now taking place it does not seem that it will be the best solution to future organizational needs.

There are several possible organizational changes that might help in facing the decentralization challenge. Among them are: (1) the DCR could be given another senior staff member who would be responsible to the Director for the work of the Seed Unit, Genetic Resources, Experimental Station Operations, Research Services, Crop Projects of Sister Institutions, and possibly some of the other Units that now report to the Director of Resources Research. The Tropical Pastures Program would then be transferred to the Director of Crops Research so that he would have responsibility for all four commodity programs. The number of people reporting directly to him would be reduced so that his job should still be manageable. (This is worth considering even without the other changes suggested below.)

The DRRIC should also be given a quite senior person as Assistant to the Director. This person will have to remain at CIAT most of the time to act as the communications link between all outposted staff and the CIAT headquarters on all matters except the technical content of their respective scientific programs. In most cases this person would act primarily as a catalyst, a coordinator and a progress chaser and would try to avoid direct involvement in either the science policy or the finance and administrative channels; (2) having two "symmetrical" Directors each having two programs and each being responsible for his own international cooperation; (3) appoint a third Director (or possibly a lower rank) to take over all the Service Units, leaving the two Directors free to concentrate on the other functions in either of the above structures.

These suggestions are made primarily to try to deal with the increasing load that decentralization will put on the director level. The EPR will undoubtedly comment on the present anomalous structure from the scientific viewpoint.

The Research Programs

Knowing that the EPR would deal with the programs in great detail we have spent little time studying them. One of us interviewed each of the Program Coordinators to get his views on his job from an administrative and management point of view. None of them reported any problems with those above them in the hierarchy except that the Directors were sometimes too busy to give them the time that they would like to have.

All were agreed that the Coordinator's position, certainly in the larger programs, should be full time.

As will be seen, all had some complaints about financial reporting and controls, supplies and computers.

All our comments should be treated as indicative only in view of the short interviews and small sample.

The Bean Program

The Bean Program which is led by Dr. Aart von Schoonhoven will be described in some detail as an illustration of the management and administrative structure of a program. CIAT has a world-wide mandate for the common bean Phaseolus vulgaris. Beans are a very important crop for small farmers in many countries and are a major source of protein for low income people. The Bean Program has a staff of 12 senior scientists, 25 in

scientific and supervisory positions and 135 in clerical and other categories. Each senior scientist leads a staff of 7 to 17 people including two or three University graduates; almost the whole of the staff have at least a high school education. In addition to this core program the Bean Program has several special projects. One financed by the Swiss Development Corporation provides for US\$400,000 a year to support senior staff in Costa Rica and Guatemala. Another is just beginning in Eastern and Southern Africa with a cost over four million dollars for eight years and for support for scientists at three different locations in Africa. The problems of managing these relatively large programs which are widely separated from CIAT will be discussed in another section.

The Bean Program is under the Director of Crops Research and is led by a Program Coordinator who is supported by one assistant and a secretary. The remaining 11 scientists share six other secretaries. In addition to giving leadership to the Program, the Coordinator is also the senior Entomologist on the team. He is supported in his entomological task by a post-doc who inevitably does most of the entomology.

Each of the senior scientists runs his own team with a substantial measure of independence. Each team has their own allocated space in the fields and greenhouses, their own clean and dirty work areas, and transport and small machinery which is centrally maintained. Specialists, such as physiologists, pathologists, and entomologists, have laboratory facilities including Station Operations, Genetic Resources Unit, Research Services, the Seed Unit, Data Services, Communication and Information, etc. Several of the scientists said that they certainly could not use any shortage of support as an excuse for failing to do productive research.

The Bean Program is in the process of integrating into the EDP network a number of Radio Shack TRS 80 micro-computers for processing its field books and related data. Three have been purchased for outposted research programs: It is felt that this computing network will greatly accelerate and simplify the processing of the mass of data from field trials. The main permanent records will continue to be kept in the IBM 4331. The Bean Program is among the largest users of the 4331.

The Rice Program

The Rice Program is led by Dr. Peter Jennings who was one of the pioneers of rice breeding at IRRI. The Program reports to the DCR. It is the smallest of the crop research programs with only five senior scientists plus 76 others and a budget of US\$967,000. It is linked to IRRI by a resident (in CIAT) liaison scientist. This program has, in the past, focused mainly on irrigated rice and it has had spectacular success in contributing increasing yields in rice growing areas throughout Latin America and the Caribbean. It is now giving increasing emphasis to Upland Rice.

The Coordinator feels that his team is about the right size to manage efficiently while still participating scientifically.

The Cassava Program

This program is led by Dr. James Cock and includes 8 senior staff, 17 scientific and supervisory staff and 109 clerical and other support staff. The operating budget for 1983 amounted to US\$1,980,000.

The Cassava Program was one of those CIAT endeavours which was affected by the need for "vertical" budget cuts. Consequently there was discussion on the overall funding of IARCs and the "stop/go" decisions which have to be made when there is no assurance of continued funding.

Tropical Pastures Program

The objective of the Tropical Pastures Program is, together with national institutions, to develop and transfer, improved, low-input pasture technology in the acid, infertile soils of tropical America, in order to conserve and improve soil resources of tropical ecosystems, increase beef and milk production, and provide a basis for an economically and ecologically sound utilization of underexploited land resources in tropical America.

Program personnel consists of 16 senior staff members, 32 in scientific and supervisory positions, and 155 in clerical and other categories.

The Tropical Pastures Program is under the DRRIC, and is headed by a full-time Program Coordinator, Dr. Jose M. Toledo.

The Program's research team is organized into three functional units: (1) germplasm evaluation, which includes the sections of germplasm, agronomy, plant pathology, entomology, and breeding; (2) pasture evaluation, which includes soil microbiology, pasture development, pasture quality and nutrition, and pasture evaluation and management; (3) pasture evaluation in production systems, which includes the sections on seed production, cattle production systems, and economics.

To date the principal emphasis has been placed on the two savanna ecosystems known as "Llanos" in Carimagua and "Cerrados" at CPAC, a station of EMBRAPA in Brazil. In addition to this core program, the International Development Research Centre (IDRC) is financing a special project to improve livestock production in underprivileged areas of tropical America.

Summary Comments

All of the Programs complained about financial reports and about supplies. The complaints about the financial reports were largely concerned with a lack of detail and occasional misallocation of charges. Complaints about supplies were almost entirely about delays.

Our general conclusions are that many of the complaints are justified and that measures already initiated by the DFA should improve both areas. These measures will not be fully effective for at least a year. In the meantime, free personal intercommunication at all levels could improve the situation both now and in the future.

The percentage of program senior scientist that use the IBM 4331 computer varies in each program from 50 to 100%. Microcomputers are rapidly spreading through the Programs. Care has been taken to ensure that as far as possible they can feed data directly to the IBM 4331. A fully integrated system has not yet been achieved but is probably not necessary provided that duplicate entry of data can be completely avoided.

CHAPTER V. THE RESEARCH SUPPORT UNITS

Many of the services needed by the Research Programs are provided by a series of Service or Support Units of widely varying size and importance. They all report to one or other of the Research Directors. There has not been time to attempt to make an objective assessment of each one. Our comments in each case are based on a brief visit and discussion with the Section Head plus a random collection of opinions from some users on their perception of the quality of the services provided.

Non-research services such as Food and Housing are under the DFA and are described elsewhere in the report.

The research services are not described in any logical order. The ones that report to the DCR are described first followed by those reporting to the DRRIC.

Training and Conferences

The Training and Conference section which reports to the DRRIC consists of 19 people of whom 8 are Research Associates working two each in each of the four programs. The Coordinator is the only senior staff member in the section. The proposed budget for 1984 is US\$1,190,000. During 1984 there are in addition two substantial special projects, one for US\$191,800 and the other for US\$160,000.

The EPR will comment on the quality and relevance of the Training programs. We discussed the organization and operation in some detail and were satisfied that the work is well planned and operated. The Training section supplies coordination, logistic and financial support while the actual course content is supplied by the Programs. Plans for a course are worked out jointly between the training staff and the Program staff. The Training program is very dynamic and changes substantially from year to year. The present emphasis is on in-country training at the more elementary level and on more advanced training including degree training at CIAT. Typical courses consist of an initial few weeks of lectures and classes followed by a few months of apprenticeship to specific scientists where the trainee actually helps with the work of the Program.

The section also conducts conferences and workshops. During 1983 there were eight CIAT conferences and four co-sponsored conferences organized by the section.

The section is responsible for implementing a policy of trying to increase income by encouraging the use of the conference facilities by non-CIAT related groups. During 1983, 24 such groups met at CIAT, most of them for only one or two days and very few of them using the accommodation at CIAT other than for lunch. Consequently, the activities are not yet producing much revenue.

Genetic Resources Unit

This unit which reports to the DCR has one senior research scientist with a support staff of 28 and a budget of about US\$350,000. Its objectives are to collect, evaluate, maintain, document and distribute germplasm of Phaseolus beans, Tropical Pastures and Cassava. In support of crop improvement programs the Unit supplies an important service within CIAT programs and to many other customers who use it as a source of genetic material. It has quite an extensive plant consisting of offices, laboratories, work rooms, greenhouses and storage facilities for both short and long-term refrigerated storage. A brief review suggested that the unit is well organized and operated. Its only complaint was a shortage of funds and of long-term storage facilities to deal effectively with its rapidly increasing collection.

Through its involvement with meristem tissue culture as a means for preserving cassava in vitro the staff have become expert in some of the techniques of tissue culture and are helping to introduce them into the Center.

Station Operations

This service unit which reports to the DCR is in charge of agricultural machinery, land preparation, planting, irrigation, field work and harvesting at headquarters in Palmira and at the three sub-stations in Quilichao, Popayan and Santa Rosa, and is in charge of the general upkeep and maintenance of experimental fields and the continuous operation of the four sites. It also produces commercial seed and crops on about 150 hectares of land on the Palmira Station that is temporarily not being utilized for research purposes. This provides a revenue of about US\$150,000 a year to the Center.

A tour of the Palmira Station showed clearly that the quality of the work done by this section is very high. Program scientists seem well satisfied with the services provided to them. The Unit is responsible for the selection and maintenance of all major farm machinery. It also maintains the small farm equipment used by the individual programs. In order to maintain its schedules the Unit operates its own small repair shop and sub-warehouses for supplies. The Unit has one senior staff with a total strength of 84.

Colombian support for CIAT is demonstrated by the fact that the land for two of the sub-stations (Quilichao and Popayan) was purchased by the Foundation for Higher Education (FES) and leased to CIAT for a nominal rent. Another (Santa Rosa) has been leased by the National Rice Growers Association and is made available to CIAT free of charge.

Management and Administration of Activities at Sites other than CIAT Headquarters, Palmira

The activities of CIAT have been rapidly spreading away from the HQ and this tendency will likely continue. There are three causes:

- 1) The ecosystem at Palmira is too favourable for most experiments. It is far from being representative of the conditions where the poor farmers need help.
- 2) Increasingly effective relations with National Programs in Latin America and the Caribbean are resulting in more joint programs in the areas of concern.
- 3) CIAT is under pressure to assume responsibility for its main crops in other parts of the world, e.g., beans in Africa and cassava in Asia.

The EMRT have not had time to visit outposted staff or remote stations except Carimagua, so all that is said here has been gleaned from discussions at Palmira. Carimagua, being run jointly with ICA, is a unique case and is dealt with separately.

The situations encountered in each other case are, of course, unique in detail but can be assigned to one of three classes:

- 1) Outposted staff whether in Latin America or elsewhere have wherever possible been placed as boarders in a suitable local agency. This seems to be the best solution and should be adopted where possible. In places such as Nairobi where "boarders" are numerous the local agencies are becoming overcrowded and national authorities concerned. In these cases the Centres have chosen one Centre to provide administrative support, e.g., the International Laboratory for Research on Animal Diseases (ILRAD) in Nairobi and the IRRI Office in Bangkok.
- 2) Outposted units that require both field and office facilities for their work (local outposts of CIAT Palmira, excepted) should also, where possible, be located on National Program facilities. There is a lot of experience within the System for CIAT to draw on. The most important thing is to do careful advance planning and to involve Administration and Finance from the beginning.

- 3) Outstations that are chiefly operated from Cali, Palmira, e.g., Quilichao, Popayan, Santa Rosa, etc. The Santa Rosa station was quickly and effectively established in 1983 largely by Station Operations working directly with the Riced Program staff. However, during later growth of the station it appeared that it would have been useful to involve the DFA staff earlier. Ideally Administration and Finance should be in on the planning from the start but should not demand a microcosm of HQ at each station. Administration must be well planned and orderly with controls kept to the minimum and adapted to fit the local situation. The controls must be cost effective.

The Carimagua Research Center

Two members of the Management Review Team (OMS and EM) visited Carimagua with the DG, the DRRIC and the Executive Officer. This center is located in the Eastern Plains of Colombia, 320 km east of Villavicencio which is itself about 100 km southeast of Bogota. The center was begun by the Instituto Colombiano Agropecuario (ICA) in 1969 when 22,000 hectares of land were purchased. Field work by ICA began in early 1970 and in February, 1977 an agreement was signed between ICA and CIAT for the development of a cooperative research program at Carimagua.

Many of the most important parts of the Tropical Pastures Program and essentially all of its animal work is now carried out in Carimagua. There is in addition a small cassava program.

Carimagua's climate, soil, ecosystem and topography are representative of one of the most important and still unused land resources in the world, the American Tropical savannas, an area of 300 million hectares. Development of appropriate technology for these savannas could make a major contribution to world food production in the coming decades. The Carimagua station is surrounded by about 4 million hectares of land of this type. CIAT's work has already identified combinations of legumes and grasses that can increase the nutritional value of forage production for cattle not by percentages but by multiples. It is one of CIAT's most exciting programs and the reader is referred to the report of the EPR for further details.

The director of the Center is an employee of ICA. The Heads of the Sections for Station Operations & Maintenance (CIAT employee), General Administrative Services (CIAT employee) and ICA Personnel (ICA employee) Sections report directly to him. Permanently hired general support personnel are contracted by ICA, and their cost is absorbed by ICA and CIAT in equal shares. Professional support staff for the research programs is contracted and paid for by the institution to which the program belongs. In addition to the existing facilities already developed by ICA and consisting of offices, laboratory, stores, warehouses, cafeteria and living quarters, CIAT has constructed four houses, an electrical plant and some other minor construction.

CIAT and ICA divide the administrative costs equally.

Each institution pays the costs of its research programs. At present CIAT's share amounts to 80% of the total and ICA pays the remaining 20%. A joint committee of CIAT and ICA supervises the activities at Carimagua. The CIAT component consists of the DRRIC, the Executive Officer and the Coordinator of the Tropical Pastures Program. Most purchases are made by CIAT's office in Bogota and delivered to Carimagua by truck. There is permanent radio communication between Palmira and Carimagua. CIAT's plane flies to Carimagua twice a week transporting program personnel, mail and money, and other items urgently required. At present there are about 200 working at Carimagua, 10 of them on CIAT regular staff. Two of CIAT's senior staff live on the station. CIAT's budget for its contribution to the station in 1984 is US\$551,000. This does not include the cost of the aircraft which is essential for servicing this very isolated station.

Our visit was too brief to permit any real assessment of the quality of the administration. We were impressed by the complexity of the problems resulting from the remote location, difficulties of transportation and communications (resulting in a need for large inventories), subdivisions between ICA and CIAT, a very limited local labor force, a very hot climate, etc. Our impression is that considering these difficulties the station is reasonably well run.

Human relations seem to be good and CIAT and ICA personnel have integrated to form a team where mutual aid is very important due to the isolated conditions of the Station.

The Aircraft

The EMRT was asked to comment on the justification, suitability, use and cost of the aircraft. The aircraft is a new Beechcraft King Air F90. We were on its first flight to Carimagua. It seems to be a suitable aircraft for this operation and Carimagua would probably not continue to be used by CIAT without regular air service.

The purchase price of the aircraft was US\$1.27 million. A preliminary estimate of the operating costs is about US\$400 per hour for 300 hours per year for a total of \$120,000 per year. Interest on the investment at 12% per annum would add another US\$150,000. Depreciation is not easily calculated since resale values fluctuate widely but will be at least \$50,000 per year (very roughly). Total annual cost of owning and operating the plane is thus at least \$320,000/yr.

Research Services Unit

This small Unit, with a total staff of 22, reports to the Research Services Committee (this is a Committee of expert users under Dr. Roca's chairmanship) and is led by Dr. William Roca who also leads the GRU. The service operates laboratories for analysis of soil, plant, water and fertilizer samples and quality evaluation, especially of Beans and Cassava. It does maintenance and repair of lab. equipment and coordinates use of lab. facilities, control of washing and sterilization of glass ware for all labs, and maintenance of small animal colonies. It also manages and maintains greenhouses, screenhouses and growth rooms.

We visited most of the facilities of the Unit and talked to several users. The facilities are impressive and well kept but not lavish. The customers appear to be well satisfied.

Communication and Information Support Unit

This Unit is of the greatest importance to the entire scientific program of CIAT and to the effective utilization of its results throughout Latin America and indeed the whole world. It is a relatively large Unit reporting to the DRRIC. It has three senior staff, 19 scientific and supervisory staff and 47 clerical and other staff. Its budget for 1984 is US\$1,436,000. Its activities include technical publications, network publications, general information, library services, documentation services and the operation of three specialized information analysis centers. The range of publications is very wide and appears to be of excellent quality. Most are in Spanish and English. The library which is very impressive serves not only CIAT but ICA and other users, both in Colombia and throughout Latin America. The Specialized Information Analysis Centers (SIACS) for beans, cassava and tropical pastures are supported by a four-year grant from IDRC, totalling C\$572,000.

The team were impressed by the breadth of this section's activity, the quality of its work and the obvious enthusiasm of the staff. The Head, Ms. Susan Harris, felt that she was adequately supported but could effectively use greater resources in almost every direction. The section especially needs greater computer support.

As in all of CIAT, Spanish is the main working language and most publications are in Spanish. The Unit is bilingual and produces as well in English as in Spanish but as CIAT's programs spread to Asia and Africa the demand for publications in English will increase and this will substantially increase the workload.

CIAT should be strongly commended on its effective bilingualism not only in communications but throughout all its operations. This adds to costs in many ways but is well worth both the money and the extra efforts that it involves.

Efforts are being made to recover some of the costs of publication both internally and by external sales. We did not examine in detail the mechanisms used but certainly would encourage their future development. The need for knowing publication costs in some detail arises in dealing with priorities within CIAT, in costing of special projects and in cost control within the unit.

Seed Unit

This unit, started in 1977, is a special core project financed by the Swiss Development Cooperation Agency. Its leader Mr. Johnson Douglas, who was originally loaned by the Rockefeller Foundation, reports to the DCR. Funding is assured until 1986. The staff totals 14 and the annual budget is about US\$700,000. The unit is described in detail in the Report of the External Program Review Team.

The Unit has two main functions: The first is to provide CIAT's four commodity programs with a service to produce, process and distribute breeder and basic seed. The second is to provide National Programs with both training and technical assistance to build up seed industries at the national level. Both are of critical importance to the attainment of CIAT's goals. CIAT needs a mechanism to bulk up and distribute basic seed while the absence of efficient seed industries is a major constraint to agricultural development in Latin America.

Being a special project has had its advantages and disadvantages. On the one hand it has provided independence of funding, on the other it has implied impermanence. There has also been considerable debate over the years as to whether a research center such as CIAT should or should not be involved in fostering mechanisms to encourage the use of the products of its research.

The Unit's demands on the administrative and support services of CIAT are similar to those of the commodity programs. They are paid for as overhead on the Swiss Grant. There do not appear to be managerial or administrative problems, other than of a routine nature, and the unit functions smoothly.

The EMRT was impressed with the unit and is of the opinion that it represents an imaginative and successful attempt to both service CIAT's own needs and assist National Programs. There is urgent need to build up more effective seed industries in many countries, and, for that matter, other agro-services that are essential for development. It is a critical issue facing most of the commodity centers in the CGIAR system and one of keen interest to developing countries. The practices and principles developed and being applied in CIAT's seed unit could have wider application in other parts of the world.

The Grant from the Swiss Government was transferred in 1983 to Restricted Core so it is no longer a Special Project. The EPR recommends that, at the expiration of the Swiss Grant it be transferred to Core funding. The EMRT recommends that a study or studies be initiated as soon as possible to explore the options for developing and adapting the unit into a more autonomous unit. By doing so it might be possible to attract additional sources of funding, increase income earning opportunities, and expand operations without being a drain on CIAT's core resources. However the goal should not be to become financially self supporting. Service must always be given first priority.

Computers in CIAT

CIAT has a long history of grappling with mixed results, with the problems of the effective use of computers for both its scientific requirements and those of finance and administration. On a number of occasions, management has tackled the problem of trying to select computer technology which would serve both these "users".

For the most part, the control of the center's data processing facilities has rested with the program arm of ICAT's operation. The present Data Services Unit reports to the DRRIC. From 1979 to 1981 this Unit had an IBM System 34 Computer, with two analysts specifically assigned to the operating requirements of finance and administration. In 1981 the System 34 was replaced by an IBM 4331 which began operating early in 1982. From our discussions with Center staff it appears that throughout this period there were difficulties in meeting the requirements of the financial and administrative areas. The delay in servicing the financial and administrative requirements received specific mention in the ad-hoc Audit and Finance Committee minutes of 29 and 30 March 1982 wherein "the Committee expressed concern about the apparent slow rate of conversion of administrative and financial data to the IBM 4331 system. The committee urges management review of organization and elimination of delay problems..."

In May 1982 a consultant from the World Bank advised that the administrative and financial computing should remain on the IBM 431. This still did not improve the situation. In April 1983 Peat Marwick made a directly opposite recommendation on hardware and recommended that a separate Administrative Systems Unit be established under the DFA. CIAT followed the latter recommendation and promptly hired an administrative EDP specialist to head the Unit. By September 1983 he submitted a detailed plan involving the purchase of an IBM System 36 for use only for administrative and financial computing. This proposal was approved in the same month.

Following this decision a new organizational Unit entitled Administrative Systems was established to select, install and operate the new IBM System 36 for finance and administration. Some analysts were transferred from the Data Services Unit to Administrative Systems and the two are now quite separate though Data Services will continue to process accounting material on their IBM 4331 until the System 36 is up and running. The present status of the Administrative System Unit has been described in an earlier section in Chapter III.

Data Services Unit

This Unit is led by Dr. Leslie Chapas. It reports to the DRRIC, has 2 senior staff and 27 support staff. The 1984 budget is US\$388,000.

The Unit is divided into three sections: Computing, Biometrics and Agroecological Studies.

The Computing Section supplies a service to the research programs and other scientific users. The IBM 4331 computer which came into service early in 1982 is internally organized to provide the users with "virtual machines" for interactive use as well as other modes. There are a total of 14 screen-terminals on hand, four for exclusive use by the Unit, five reserved for program use within the Unit's premises; one in administration/accounting, two with program and two more are in the process of being installed. Six additional screens have been ordered.

The service is widely used by the Programs. The distribution of CPU time in 1983 was Tropical Pastures 22%, Beans 17%, Cassava 8%, Rice and Genetic Resources 4%. Other users were Finance and Administration Data Services 13%, Communications and Library 4% and others 11%.

The machine showed early signs of reaching its capacity so in 1982 and early 1983 it was upgraded from a Type I to a Type 2, thus doubling the CPU capacity. Demand has since continued to grow rapidly. Some of DFA's 17% should be on the System 36 by 1985, thus freeing some capacity.

Our impression is that the system would be more widely used if programs were accessible through interactive terminals in users' own offices. If this is done increased capacity will soon be needed. This probably be obtained by upgrading the 4331 at a reasonable cost.

In addition to this growing use of the Data Services the Programs are installing micro-computers for local interactive use. Inevitably problems of compatibility were serious and not always completely solved. A real effort is being made to ensure that everyone can input data to the 4331. The Programs would like also to have interactive terminals from the 4331 available in their own offices.

Biometrics Section

This Unit operates fairly independently to provide a statistic consulting and education service. It is led by Ms. M.C. Amezcuita.

There are three other professional staff, some technicians and others supplied by the Programs.

It is widely used and the users speak highly of its service.

Agroecological Studies

This work was formerly done by a series of visiting scientist contracts. In 1983 it was transferred to core and an agroecologist appointed. If revenue permits a Land Systems Specialist will be added.

The function is located in Data Services because its large rapidly growing data base makes it one of the major users of computer capacity in CIAT. Its work would be greatly facilitated by the availability of digitizing equipment for the manipulation and display of maps.

Phosphorus Project

This is an on-farm research project of the International Development Center (IFDC). It is funded by the Canadian International Development Research Centre (IDRC). The project leader, Dr. Alfred Ennals, has been at CIAT for 5 years. The project has a staff of 6.5 including agronomists, himself and an anthropologist on a Rockefeller post-doctoral fellowship. The budget for 1984 is US\$162,000.

The project is so firmly integrated with CIAT that it appears to be part of the core program. It operates at many locations and with most of the Programs although it conducts its own field trials and has its own assigned laboratory space.

Dr. Leon finds conditions at CIAT excellent. If he has trouble understanding his monthly financial report (which is surprisingly complex), he drops in on his friend in the Controller's office who is responsible for his account and quickly gets a clear explanation. He has had no supply problems that have held up his work. He or Dr. Ashby often seek biometric assistance in planning and analysing experiments.

Crop Projects of Sister Institutions at CIAT

There are four of these reporting to DCR. They are:

CIMMYT - Andean Regional Project (Maize)
INTSORMIL/ICRISAT/CIAT Sorghum Project
INTSOY/ICA/CIAT Soybean Project
IBPGR Liaison/S. America

Brief discussions with James Barnett of the CIMMYT maize program showed that after some initial misunderstandings they were now able to operate with adequate independence but with CIAT support where necessary. They collaborate fairly actively with the Bean Program on bean/maize associations.

OMOND M. SOLANDT

Dr. Solandt has spent his working life in the management of research in a variety of different fields. He became involved with the CGIAR in 1975 when IDRC retained him as a Consultant to help in the establishment of ICARDA in the Middle East. Dr. Solandt was a member of the Board of Trustees of ICARDA from 1976 to 1981, and later Vice-Chairman. He has been on the Board of Trustees of CIMMYT since 1976 and is at present Chairman of the Executive Committee.

Dr. Solandt has served on the Board of Trustees of the International Center for Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya from 1976 to 1982 and as Chairman of the Board in 1981/82. He was a founding member of the Board and Chairman of the Finance Committee of the International Center for Diarrheal Diseases Research - Bangladesh (ICDDR) from 1977 to 1980. In 1982 he was on the CGIAR Review Committee and is on Dr. Lowell Hardin's Committee that is preparing a report concerning the duties of Boards of Trustees. In 1983 he was Chairman of the Management Review Team for CIP and did some management consulting for ILCA.

Other activities have included:

Founding Chairman - Science Council of Canada
Chairman - Science Advisory Board for the Northwest Territories
Chancellor - University of Toronto
Chairman - Defense Research Board - Canada
Vice-President Research - Canadian National Railway
- De Havilland Aircraft of Canada
- American Management Association

EDMUND M. ZDYB

Currently Associate Director, Audit at the International Development Research Centre (IDRC), Ottawa, Canada. Mr. Zdyb has been associated with IDRC for eight years, in positions as Manager, Project Accounting, to Comptroller, to Associate Director, Policy (Financial). Mr. Zdyb is quite familiar with the operations of the Consultative Group, having participated as part of the IDRC implementation team in the establishment of ICARDA. Moreover, he has acquired knowledge of specific IARC operations in view of IDRC's involvement in special projects with a number of CGIAR Centers.

Mr. Zdyb was also Secretary-Treasurer for the National Sports and Recreation Centre, Ottawa, Canada, a non-profit organization established to provide support services (accounting, EDP, office space, secretarial, audio-visual, printing, etc.) for some sixty Canadian national amateur sports organizations headquartered in Ottawa.

Mr. Zdyb's background also includes experience gained in business advisory and consulting positions, within the Canadian Government, involving assistance to client organizations in establishing necessary operating and financial systems.

Mr. Zdyb is a graduate of the University of Montreal (Loyola College), and is a professional Canadian Chartered Accountant, having articulated with the international auditing firm of Peat Marwick Mitchell and Partners.

EMILIO MADRID

President of the National Agriculture Research Institute of Chile during the last 6 years. Mr. Madrid is quite familiar with the operations of the Consultative Group, as Executive Office and Assistant Treasurer of the International Maize and Wheat Center in Mexico, from 1968 to 1978.

Mr. Madrid was General Manager-Agricultural Enterprise in Chile for 15 years, also at the same time Mayor of Curacavi, a small city in Chile for three years. Member for the Agricultural Development Main Board (Chilean Government) for one year. General Secretary, Rockefeller Foundation in Chile, four years. Second Vice-President IFARD, Latin America Chapter for the last three years.

Member of the Management Council of the National Agricultural Society - Chile. Member of the Management Council of the National Association of Seed Producers - Chile. Associate Member IICA (Interamerican Institute of Agricultural Cooperation), San Jose, Costa Rica. President for 1984 of the Agricultural Research Program IICA - South Cone - Inter American Development Bank, Montevideo, Uruguay.

Mr. Madrid has both graduate and postgraduate degrees from the Universidad Catolica and Universidad de Chile, Santiago, Chile.

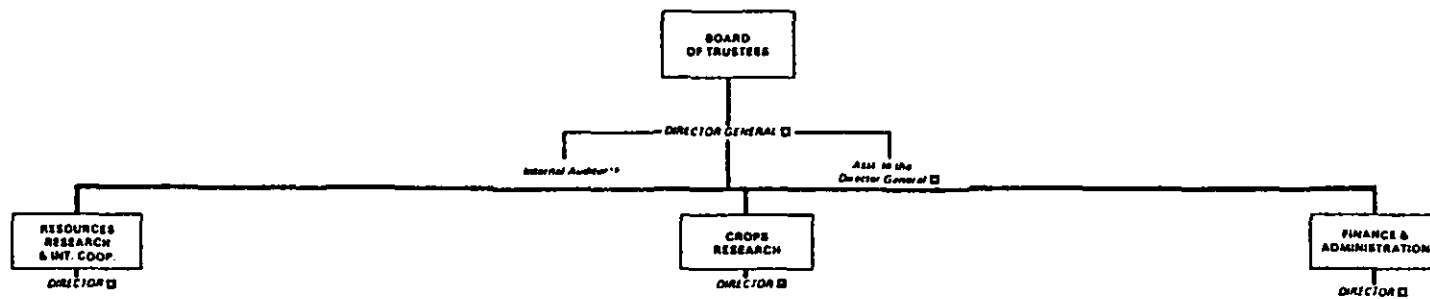
Terms of Reference

IARC Management Reviews

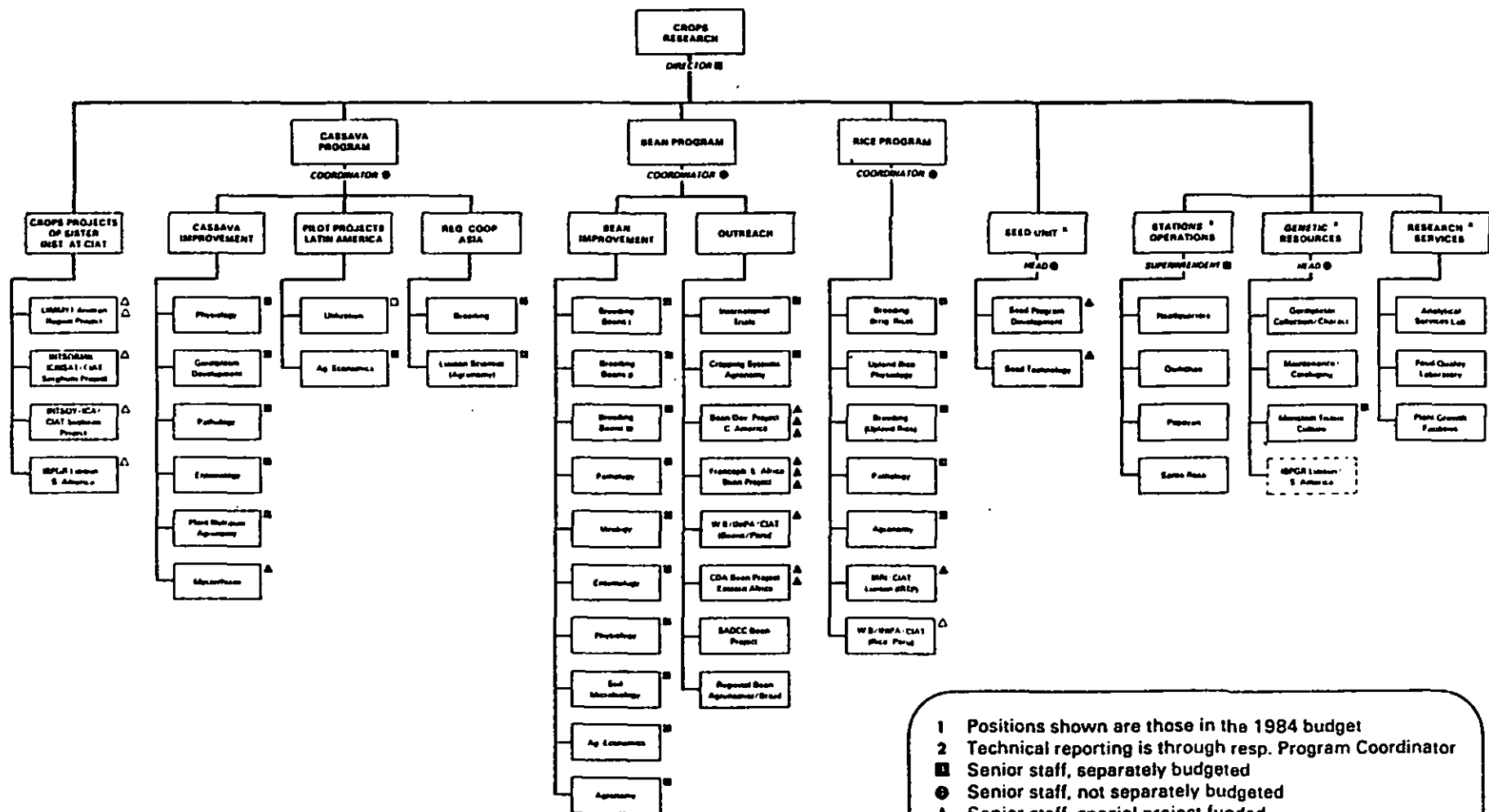
The broad purposes of the management reviews of International Agricultural Research Centers are:

- a) To provide the center with insights into the management effectiveness of the organization. These insights should assist the board and center management in devising ways of improving the effectiveness and the efficiency of the center's operations.
- b) To provide the Group, and particularly the donors, with information on the management effectiveness of the center and on problem areas that need to be addressed.
- c) To ascertain whether the center management is receptive to change and whether the administrative, financial and other management systems are designed and operating efficiently and in ways that enable the center management to monitor progress, discover weaknesses and introduce corrective action.
- d) To identify management practices at one center that may have broader application in the system.
- e) To identify elements or circumstances that have important positive or negative influences on the center's efficiency, and where appropriate, to suggest constructive change.

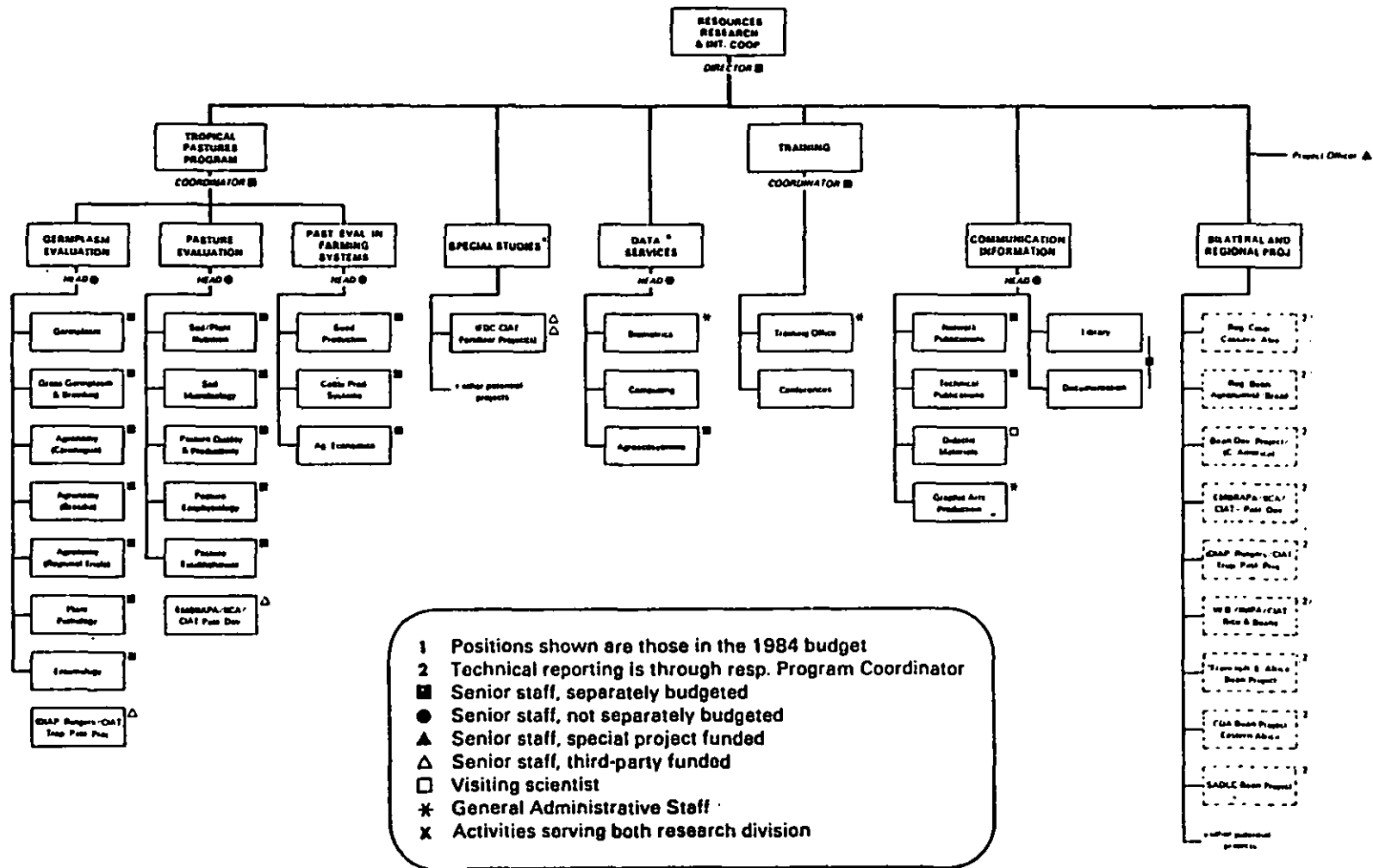
CIAT ORGANIZATION CHART¹

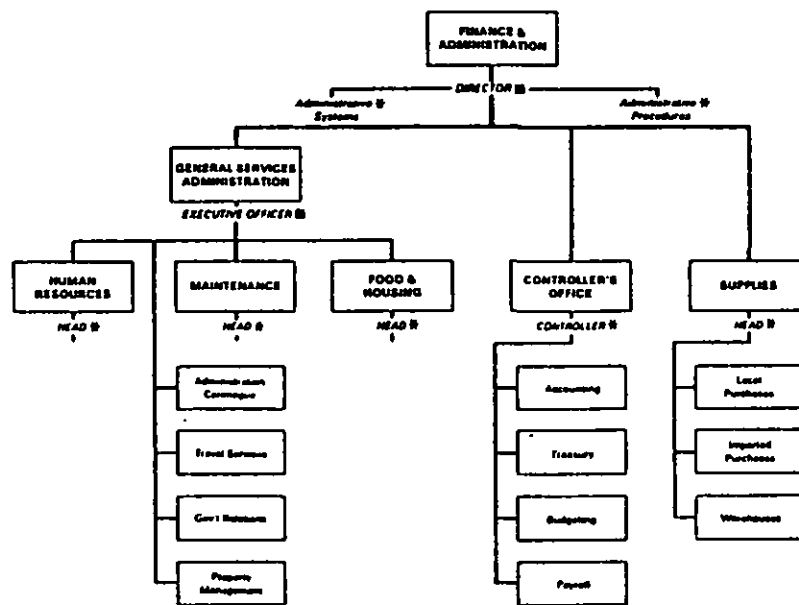


- 1 Positions shown are those in the 1984 budget
- 2 Technical reporting is through resp. Program Coordinator
- ▣ Senior staff, separately budgeted
- Senior staff, not separately budgeted
- ▲ Senior staff, special project funded
- △ Senior staff, third-party funded
- Visiting scientist
- * General Administrative Staff
- x Activities serving both research division



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- △ Senior staff, third-party funded
- Visiting scientist
- * General Administrative Staff
- x Activities serving both research division

CIAT Personnel Interviewed

(Alphabetical Order)

- 1) Camilo Alvarez, Head, Property Management
- 2) Leslie Chapas, Head, Data Services
- 3) Carimagua (Joint CIAT/ICA Station operation):
 - Melba Bahamon, Treasurer (in charge), CIAT
 - Harold Dominguez, Head, Stations Operations, CIAT
 - Bela Grof, Tropical Pastures, CIAT
 - Lucelly Gutierrez, Secretary, CIAT
 - Arbey Herrera, Head, Stores, ICA
 - Carlos Lascano, Tropical Pastures, CIAT, Palmira
 - Carlos Prado, Head, Personnel Office, ICA
 - Jesus A. Vergara, Head, General Services, CIAT
- 4) James H. Cock, Coordinator, Cassava Program
- 5) Jesus A. Cuellar, Executive Officer
- 6) Alfonso Diaz Duran, Head, Farm Operations
- 7) Johnson E. Douglas, Head Seed Unit
- 8) David Evans, Head, Food & Housing
- 9) Fernando Fernandez, Coordinator, Training & Conferences
- 10) Hector Florez, Head, Administrative Procedures
- 11) German Gutierrez, Head, Maintenance
- 12) Susan Harris, Head, Communication & Information Support Unit
- 13) Peter Jennings, Plant Breeder, Coordinator Rice Program
- 14) Fritz Kramer, Assistant to DG
- 15) Douglas R. Laing, Director Crops Research
- 16) Luis F. Montoya, Internal Auditor
- 17) John L. Nickel, CIAT Director General

- 18) Gustavo A. Nores, Director, Resources Research & International Cooperation
- 19) Luis Osorio, Head, Supplies
- 20) Alejandro Rebolledo, Controller
- 21) William Roca, Head Genetic Resources Unit
- 22) Armando Samper, Chairman Emeritus of CIAT
- 23) Aart van Schoonhaven, Coordinator, Bean Program
- 24) Jose M. Toledo, Coordinator, Tropical Pastures Program
- 25) Andrew V. Urquhart, Director, Finance & Administration
- 26) German Vargas, Head, Human Resources
- 27) Hector Villalobos, Head, Administrative Systems
- 28) Other
 - Price Waterhouse (external auditors)
 - Mr. Eduardo Calero, Manager
 - Mr. Aldemar Toledo, Partner

Glossary of Acronyms

CGIAR	- Consultative Group on International Agricultural Research
CIAT	- Centro Internacional de Agricultura Tropical
CIMMYT	- Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	- Centro Internacional de la Papa
CPAC	- Centro de Pesquisa Agropecuaria dos Cerrados
DCR	- Director of Crops Research
DFA	- Director of Finance and Administration
DG	- Director General
DRRIC	- Director of Resources Research and International Cooperation
EMBRAPA	- Empresa Brasileira de Pesquisa Agropecuaria
EPR	- External Program Review
GRU	- Genetic Resources Unit
IARC	- International Agricultural Research Centre
IBPGR	- International Board for Plant Genetic Resources
ICA	- Instituto Colombiano Agropecuario
ICRISAT	- International Crops Research Institute for the Semi-Arid Tropics
IDRC	- International Development Research Centre
IIE	- International Institute for Education
IITA	- International Institute of Tropical Agriculture
INTSORMIL	- International Sorghum and Millet Program
INTSOY	- International Soybean Program
IRRI	- International Rice Research Institute
MRT	- Management Review Team
SIAC	- Specialized Information Analysis Center
TAC	- Technical Advisory Committee
WARDA	- West African Rice Development Association

