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**FOR
EXECUTIVE
DIRECTORS'
MEETING**

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WBG ARCHIVES

For consideration on
January 25, 1972

R72-7

FROM: The President

January 13, 1972

Grants to Various International Agricultural Research Centers

I submit the following report and recommendations on grants to various international agricultural research centers in a total amount of \$1.26 million.

Part I - HISTORICAL

1. These would be the first grants by the Bank in support of international agricultural research. In principle, however, the Bank has been prepared for more than two years to consider activity of this kind. A Report of the Executive Directors dated June 19, 1969, entitled "Stabilization of Prices of Primary Products" (R69-144/1), indicated that the Bank would be prepared to "participate in financing agricultural and other research having high priority in developing countries, as much as possible in cooperation with other national and international institutions."

2. In October 1969, I invited the United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO) to join with the Bank in exploring the possibility of mobilizing long-term financial support from international agencies, governments and private sources to supplement arrangements for financing agricultural research institutions then in existence and, over time, a number of new ones. The response from the Administrator of UNDP and the Director-General of FAO was favorable, as I reported to the Board in a memorandum on the recommendations of the Pearson Commission concerning research (SecM70-92, dated March 6, 1970).

Distribution:

Executive Directors and Alternates
President
President's Council
Executive Vice President, IFC
Vice President, IFC
Department Heads, Bank and IFC

3. In the spring of 1970, I sent the Executive Directors a memorandum containing my views about how the Bank might act to mobilize funds for agricultural research (SecM70-141, dated March 31, 1970). I proposed that this action should be directed specifically to the support of international research institutes, on the grounds that such institutes would offer significant advantages over national centers. I suggested that the instrument for mobilizing support for international institutes might take the form of a consultative group, composed in this instance not only of governments and the Bank, but also of other international organizations, regional development banks and private organizations. I added that I believed the Bank should not merely assist in mobilizing support, but should itself make a financial contribution, and that this might have to take the form of a grant.

4. The matter was discussed in meetings of the Committee of the Whole in July 1970 and subsequently, in cases where reservations had been expressed, with a number of individual Executive Directors and their Governments. These discussions resulted in a consensus that the Bank, along with UNDP and FAO, should continue with steps to organize a Consultative Group. Accordingly, at the Bank's headquarters in January 1971 a preliminary International Agricultural Research Meeting was held which brought together prospective members of the Group.^{1/} It was the sense of the Meeting that a Consultative Group should be formally established.

5. The role that the Bank might play in financing agricultural research was discussed by the Executive Directors in May 1971. The Directors generally supported the views expressed in my memoranda of March 31, 1970 and of May 4, 1971 (R71-91). They authorized a statement to the Consultative Group that, subject to the approval of the Board of Governors, the Bank would be prepared to consider grants of up to \$3 million for the calendar year 1972 for activities supported by the Consultative Group, provided that the requisite funds could not be found from other sources.^{2/}

6. The first meeting of the Consultative Group on International Agricultural Research was held in Washington on May 19, 1971. In addition to the three sponsoring agencies, 15 governments and organizations attended as members, and ten attended as observers. The Group agreed, among other things, (a) to review the needs of developing countries for special efforts in international and regional agricultural research and associated training in critical subject sectors unlikely otherwise to be covered adequately by existing research facilities, and to consider how these needs could be met, (b) to review the financial and other requirements of those agricultural research activities which the Group considers to be of high priority, and to consider providing finance for those activities, and (c) to suggest feasibility studies of specific proposals and to agree on how these studies should be undertaken and financed.^{3/}

^{1/} The proceedings were reported to the Executive Directors in SecM71-82, dated February 10.

^{2/} As recorded in M71-20, dated June 1, 1971.

^{3/} Summary of Proceedings, AGR 71-3, dated June 9, 1971.

7. The Group also appointed 12 experts to constitute a Technical Advisory Committee (TAC) to assist its work, and designated Sir John Crawford, Vice Chancellor of the Australian National University, to be Chairman. It was further agreed that the Bank would provide the secretariat of the Consultative Group and that FAO would provide the secretariat of TAC.

8. TAC met in April and again in October 1971 to consider proposals for supporting existing international research programs and for establishing new ones. The most urgent business before it was the question of support for 1972 for four major centers already in operation: The Maize and Wheat Improvement Center (Centro Internacional de Mejoramiento de Maiz y Trigo, or CIMMYT), based in Mexico; the International Rice Research Institute (IRRI), based in the Philippines; the International Center for Tropical Agriculture (Centro Internacional de Agricultura Tropical, or CIAT), based in Colombia; and the International Institute for Tropical Agriculture (IITA), based in Nigeria. TAC also considered the question of support for the International Potato Center (Centro Internacional de Papa, or CIP) recently established in Peru. In addition, TAC considered proposals for new research activities, of which only one was sufficiently advanced to have immediate financial implications: this was a proposal for establishing an International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), probably to be based in India.

9. At its meeting in October, TAC formulated recommendations to the Consultative Group on these and other matters. It strongly recommended that the Group give financial support to the five existing centers and that the Group authorize action to set up ICRISAT. These and other recommendations were set out in a voluminous Report by TAC on its October meeting; copies of this Report have been distributed separately to the Executive Directors (SecM71-536, dated November 19, 1971).

Part II - INTERNATIONAL AGRICULTURAL RESEARCH ACTIVITIES

10. In its deliberations, TAC has defined "international research" broadly to mean research which, although undertaken in one country, is of wider concern, regionally or globally; is independent of national interest and government control; and retains appropriate links with national research systems to ensure the necessary testing of results and the feedback of both results and needs. The centers whose activities were the subject of favorable recommendations by TAC all meet this definition.

11. Of the four major existing centers, the one with the longest history is CIMMYT. It had its origin in a cooperative agriculture program initiated in 1943 by the Rockefeller Foundation and the Government of Mexico; it was incorporated in its present form in 1966. Its accomplishments received signal recognition in 1970, when the director of its wheat program, Dr. Norman Borlaug, received the Nobel Prize for Peace.

12. CIMMYT's principal objective is to increase the yield and improve the quality of maize and wheat wherever they can be grown effectively.

Unprecedentedly abundant harvests of wheat on irrigated land, especially in Asia, that made up part of the "green revolution" of the latter 1960s were based on the high-yielding dwarf varieties and the technology for cultivating them which CIMMYT developed in Mexico. About 10 million hectares of land in some 20 countries are now sown annually with these high-yielding dwarf wheats. CIMMYT's research is currently emphasizing the further development of high-lysine maize and of high-yielding wheats that can be grown successfully in dry-land farm areas.^{4/}

13. CIMMYT's achievements in wheat have been paralleled by the success of IRRI, established in the Philippines in 1962, in developing and promoting the spread of high-yielding varieties of rice. Record rice harvests based on the work of IRRI also were part of the green revolution; IRRI and CIMMYT shared the Unesco Science Prize in 1970. About eight million hectares of land in some 20 countries are now planted to high-yielding strains of rice based on genetic lines developed by IRRI. New investigations being carried on by IRRI include research to develop high-protein rice, to breed varieties suitable for cultivation on non-irrigated land, and to analyze the socio-economic changes resulting from the adoption of new technologies in rice culture.^{5/}

14. CIAT is a young center just getting its programs under way, but it is able to draw on a substantial base of experience: formally established in 1967, it is an outgrowth of the cooperative agricultural program established in 1950 by the Rockefeller Foundation in cooperation with the Government of Colombia. Initially, CIAT is devoting its efforts to six products of lowland farming: beef, swine, rice, maize, tropical root crops (mainly cassava) and food legumes (drybeans and soybeans). CIAT's ultimate goal is to develop or improve, as quickly as possible, profitable farming systems for the large and presently sparsely populated lowland areas of Latin America.^{6/}

15. IITA, also a young center, was formally established in Nigeria in 1968; it initiated its training programs in 1970 and its research programs in 1971. The objective of the Institute is to improve the productivity

^{4/} A brief description of CIMMYT is given in Appendix A. The Center's current program and budget are discussed in detail on pages 8-13 of the TAC Report; and TAC's conclusions and recommendations with respect to CIMMYT appear on pages 59-60 of that Report.

^{5/} A brief description of IRRI is given in Appendix B. The current program and budget of IRRI are discussed in detail on pages 17-20 of the TAC Report; and TAC's conclusions and recommendations with respect to IRRI appear on page 61 of that Report.

^{6/} A brief description of CIAT is given in Appendix C. CIAT's current program and budget are discussed in detail on pages 4-8 of the TAC Report; and TAC's conclusions and recommendations are given on page 59 of that Report.

of agriculture in the world's humid tropical zones, particularly in Africa. IITA has two research programs. One is directed to developing improved cropping systems; the other will be devoted specifically to improving the productivity of selected food crops: rice, maize, grain legumes, and roots and tubers.^{7/}

16. CIP, with headquarters in Peru, is the outgrowth of cooperative efforts by the Government of Peru, the University of North Carolina, the U. S. Agency for International Development and the Rockefeller Foundation. For both calorie and protein content, the potato ranks high among the important food crops of the world. Cultivation, already widespread in Europe and the Western Hemisphere, has been increasing rapidly in the past decade in parts of the Middle East, South Asia and Africa; India has now more acreage in potatoes than the Andean countries where the crop originated.

17. The Presidential decree establishing CIP was issued in 1967; funds actually became available and operations began in 1970. Priority research projects of the Center include the breeding of varieties of potatoes with increased resistance to disease and cold, development of improved methods of processing for storage, research to increase protein content still further, and better adaptation of the potato to tropical climates.^{8/}

18. The prospective ICRISAT will be the first international center to be established for the important ecological zone of the semi-arid tropics. It will have as a major objective the development of farming systems from which farmers can benefit who, because they work land which is not irrigated, have not so far participated to any great extent in the green revolution. ICRISAT is likely to be situated in India; it will concentrate on improving the yield and nutritional quality of four major crops: sorghum, pearl millet, chickpeas and pigeon peas.^{9/}

Part III - FINANCIAL REQUIREMENTS

19. The Consultative Group met for the second time at the Bank's headquarters on December 3 and 4 to consider the proposals of TAC and conduct other business. Twenty-five members and four observers attended the meeting; two other members and one observer were unable to be present. A summary record of the meeting was recently circulated to the Executive Directors (AGR 71-10).

^{7/} A brief description of IITA is given in Appendix D. IITA's current program and budget are discussed in detail on pages 13-17 of the TAC Report; and TAC's conclusions and recommendations are given on pages 60-61 of that Report.

^{8/} A brief description of CIP appears in Appendix E. TAC discusses the Center on pages 41-43 of its Report; and TAC's conclusions and recommendations with respect to CIP appear on page 64 of that Report.

^{9/} A brief description of the ICRISAT proposal appears in Appendix F. The proposal is discussed in detail on pages 28-30 of the TAC Report; and TAC's conclusions and recommendations with respect to ICRISAT appear on pages 63-64 of that Report.

20. The Group approved TAC's recommendations for support to the five existing centers for the calendar year 1972, and agreed that the financial requirements of these centers should be met. In the case of CIP, in line with the recommendations of TAC, the Group agreed that funds should be provided to continue the activities of the Center in 1972 pending the preparation by the Center authorities of a more definitive proposal to the Group concerning CIP's long-range program.

21. The total financing recommended by the TAC for the 1972 programs, of CIAT, CIMMYT, IITA and IRRI, plus a "bridging fund" to keep CIP in operation during 1972, is estimated to be \$14.75 million.^{10/} A breakdown is shown below.

	(millions)
CIAT	\$ 2.83
CIMMYT	5.02
IITA	3.88
IRRI	2.93
CIP	<u>0.64</u>
	\$ 15.30
Less:	
Centers' Special Income	<u>0.55</u>
Net Requirements	\$ 14.75

22. In the Group meeting a number of members, including the Bank representatives, made statements of their intentions, subject to legislative and other approvals, to make contributions toward the indicated requirements. Those statements (with slight modifications to reflect subsequent developments) are shown below.

^{10/} This figure does not include (a) special projects amounting to about \$3.25 million for which financing has been or is being arranged; (b) cost over-runs on construction already begun or contracted for, which will have to be met outside the Consultative Group framework; (c) the capital requirements of CIAT for which firm figures are not available, and which will probably have to be deferred.

<u>Donor</u>	<u>Amount (millions)</u>
United States	\$ 3.25 ^{11/}
Rockefeller Foundation	3.13
Ford Foundation	3.00
Germany	1.60
IBRD	1.16
Canada	1.05
United Kingdom	0.60
Belgium	0.44
Denmark	0.25
Netherlands	0.25
Kellogg Foundation	0.20
Other Donors	<u>0.12</u>
	\$ 15.05

23. Of the difference of \$300,000 between indicated contributions of the donors (i. e., \$15.05 m) and the net requirements of the five centers (i. e., \$14.75 m), at least \$100,000 and perhaps as much as \$200,000 is likely to go to the initial fund for ICRISAT (see paragraph 27 below). The remainder is in effect a contingency fund to take care of the difficulty of matching the contributions of all the donors to the requirements of each of the programs, a difficulty enhanced by the fact that Belgium, Denmark and Germany have not, as yet, made any allocation of their contributions. A tentative picture showing the financing of each center on the basis of amounts provisionally allocated by donors other than Belgium, Denmark and Germany, and the amounts for each center remaining to be financed by "other donors," is attached as Annex 1.

24. Among the existing centers, I propose that the Bank support CIMMYT with a grant of \$1 million for 1972. A grant in this amount is necessary if CIMMYT is to carry out its full program during the current calendar year; indeed CIMMYT, even with a Bank grant in this amount, may have to defer some

^{11/} Excluding \$280,000 for construction costs of IITA.

desirable capital expenditures unless another \$1.25 million is made available from other donors. The grant would support work at a well-established center which is well known to the staff of the Bank and one whose work clearly is of the first rank in international agricultural research.

25. I also propose that the Bank make a grant of \$160,000 to CIP. The grant, if approved, would contribute to the interim funding needed for research on one of the world's foremost food crops. While the Technical Advisory Committee was not fully satisfied with the form of the proposal presented to it concerning CIP, it had no doubt concerning the importance and potential benefit of the work the Center will be carrying out, and, as already noted, recommended that "bridging funds" be provided to enable CIP to continue operations until a further review could be conducted by TAC.

26. In the case of ICRISAT, which is not included in the programs described above, the Consultative Group accepted the recommendation of its Technical Advisory Committee that a fund of \$500,000 be established to finance the first steps toward establishing the new center. These steps would include selection of a site (which the host government would be expected to donate), negotiation of charter legislation and other enabling agreements with the host government, appointment of an initial Board of Directors, recruitment of a skeleton staff and placing of early orders for construction and equipment. At the suggestion of the Chairman of TAC, the Ford Foundation was requested by the Consultative Group to serve as its agent in carrying out these initial steps, and the Foundation has agreed. The Consultative Group also established a subcommittee of its members to consult and advise with the Ford Foundation in its execution of this assignment.

27. At the Consultative Group meeting, the representatives of the Bank, the United Nations Development Programme, the United Kingdom and the United States expressed a willingness, subject to the necessary approvals, to contribute \$100,000 each to the initial fund for ICRISAT; this would be in addition to the amounts mentioned in paragraph 22. Other delegations expressed interest in the proposal without mentioning specific contributions.

28. I now propose that the Bank make a contribution of \$100,000 to the initial fund for ICRISAT, when commitments have been made by other donors to contribute a total additional amount of at least \$300,000. In addition, I propose that the Bank agree with the other donors that it will become the agent for collecting and administering the fund. I believe that such support for ICRISAT by the Bank is clearly merited: ICRISAT will be the first international center established for research into farm systems and major food crops of the semi-arid tropics, and its work is of great potential benefit to millions of farmers in this important ecological zone.

29. I propose further that the whole of the grants for CIP and ICRISAT be made immediately, but that the grant to CIMMYT be disbursed in four equal installments, of which two would fall in FY1972 and two in FY 1973.

30. Since the decisions by prospective donors for the activities supported by the Consultative Group are not in all respects final, it is possible (although I do not regard it as probable) that it may become desirable for the Bank to make grants additional to those proposed above, within the ceiling of \$3 million already approved by the Board. In that event, I would, of course, return to the Board for approval of such additional grants.

Part IV - LEGAL INSTRUMENTS AND AUTHORITY

31. In my memorandum of May 4, 1971, to the Executive Directors (R71-91), I indicated that I would ask that, subject to the approval of the Board of Governors, grants for international agricultural research be made available out of funds transferred to IDA from the Bank's net income. I informed the Board in a memorandum of November 19, 1971 (R71-255), however, that the amount needed for 1972 seemed likely to be relatively modest, and that it therefore did not seem desirable to take the matter up with the Governors now. That position has since been confirmed by the outcome of the meeting of the Consultative Group, and it seems more practical on this occasion to provide the funds out of the Bank's administrative budget.

32. The text of a draft resolution approving the proposed grants is being circulated separately. Disbursement of \$760,000 required in FY1972 would be made out of a supplemental appropriation to the Bank's administrative budget for 1972. Funds for the remaining disbursements would be included in the Bank's regular administrative budget for FY1973.

33. The text of a draft resolution authorizing the Bank to act as agent for the initial fund of ICRISAT is also being circulated separately.

Part V - RECOMMENDATIONS

34. I recommend that the Executive Directors approve the proposed grants in support of international agricultural research, and that they authorize the Bank to act as agent for the initial fund for ICRISAT.

Robert S. McNamara

INTERNATIONAL AGRICULTURAL RESEARCH CENTERSTentative Schedule for Financing Core and Capital Budgets in 1972

I.	<u>CIAT</u>	
	Ford Foundation	\$ 0.72
	Rockefeller Foundation	0.72
	USAID	0.72
	CIDA	0.30
	Kellogg Foundation	0.20
	Netherlands	0.12
	Special Income	<u>0.05</u>
		<u>\$ 2.83</u>
II.	<u>CIMMYT</u>	
	USAID	\$ 0.93
	Ford Foundation	0.75
	Rockefeller Foundation	0.75
	Special Income	0.38
	IBRD	1.00
	Other Donors	<u>1.21</u>
		<u>\$ 5.02</u>
III.	<u>IITA</u>	
	Ford Foundation	\$ 0.75
	Rockefeller Foundation	0.75
	CIDA	0.75
	USAID	0.75
	United Kingdom	0.23
	Netherlands	0.12
	Other Donors	<u>0.53</u>
		<u>\$ 3.88</u>
IV.	<u>IRRI</u>	
	Ford Foundation	\$ 0.75
	Rockefeller Foundation	0.75
	USAID	0.75
	United Kingdom	0.36
	Special Income	0.12
	Other Donors	<u>0.20</u> (a)
		<u>\$ 2.93</u>

(a) Includes \$73,000 and \$48,000 from IDRC and Japan respectively.

V. CIP

IBRD	\$ 0.16
USAID	0.13
Rockefeller Foundation	0.13
Germany	0.12
Other Donors	<u>0.10</u>
	<u>\$ 0.64</u>

Initial Fund for ICRISAT

United Kingdom	\$100,000)
United States	100,000)
UNDP	100,000)\$500,000 minimum
IBRD	100,000)
IDRC and other donors	to be determined)

CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO (CIMMYT)
(INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER)

El Batan, Mexico

Introduction

1. The International Maize and Wheat Improvement Center (CIMMYT), established in its present form in 1966, has made two major contributions to the ability of developing countries to improve their own production of maize and wheat. First, it demonstrated how to increase yields dramatically through varietal improvement and to increase production through the "package approach," and, second, it passed on these policies and techniques through training programs to countries in Asia, Africa, and Latin America, helping them to develop expertise in solving their own problems in production of these cereals. The strength of this approach rests not only in the wealth of germplasm and technical assistance provided, but also in the active cooperation it has evoked from the plant scientists and governments of countries in these three key regions of the world. Many separate national plant-improvement programs have been drawn into a worldwide exchange network through this mechanism. This approach also has great implications for the future, since it enables CIMMYT to develop new varieties in its headquarters and substations, cross them in its outreach work with the best that has been produced in national and regional programs, and send the resulting material back to Mexico, where a genuine world gene pool of unique character is being developed. Throughout this process, CIMMYT has consistently maintained a commodity-oriented problem-solving research and training dimension. With outreach activities now at a full takeoff, CIMMYT's maize and wheat programs can be considered to be fully international.

The Center

2. The idea of dedicating high-level, multidisciplinary research to improving a single crop on a worldwide scale crystallized during the 1960's; it was first formalized in the International Rice Research Institute (IRRI), established in the Philippines in 1962 by the Ford and Rockefeller Foundations, but the genesis of the concept dates back to the cooperative agriculture program initiated in 1943 between the Government of Mexico and the Rockefeller Foundation. This cooperative effort has become a classic success story: it led to the transformation, by 1965, of a food-deficit country to self-sufficiency in maize and wheat. From this base, CIMMYT evolved and was formally established in April 1966 under Mexican law as an autonomous, non-profit, scientific and educational institution to be governed by an international Board of Directors, currently from nine countries.

3. CIMMYT's principal objective is to increase the yield per unit area and improve the quality of maize and wheat wherever they can be grown efficiently. This involves the development of widely adaptive, high-yielding varieties which are fertilizer and water responsive, disease and insect resistant, and have high nutritive quality. To accomplish its work, CIMMYT

has a 34-man senior staff and a seven-man junior staff stationed at its new El Batan headquarters, inaugurated in September 1971. This new facility, the land for which was donated by the Government of Mexico, along with four substations located in specific ecological regions in Mexico and partly provided by the National Institute of Agricultural Research (INIA), now provide CIMMYT with the wide range of conditions necessary to test its breeding material for worldwide adaptation.

Current Programs

Maize Research

4. CIMMYT's current goals in conducting its maize program are far more ambitious than those pursued in earlier years, when it was generally believed that most known varieties were highly sensitive to length of day and had limited areas of adaptation. Earlier programs were therefore primarily concerned with the collection of maize germplasm indigenous to the Western Hemisphere, where maize originated, and to varietal development that was location specific. Efforts are now being focused on development of maize varieties that can be widely adapted throughout the world, are high yielding, and of increased nutritive value. In improving the protein quality of grain, special attention is given to retaining the same appearance and taste as regular maize. These widely useful materials are being developed through regional breeding efforts, involving various kinds of selection and progeny testing in many distinct agroclimatic regions. Improvement in the effectiveness of selection for insect and disease resistance is also being sought. In this way, varieties are being put together on the basis of the performance of their component parts over a wide area. This is the reverse of general procedures followed earlier in which varieties were developed at a few locations and then tested at many to determine their range of adaptation.

Wheat Research

5. Where earlier CIMMYT research was directed primarily at developing high-yielding spring bread wheat varieties under irrigated or adequate rainfed conditions, the program now has been broadened to include work on winter-hardy spring bread wheats, the durum wheats, and the triticales (man-made wheat-rye hybrids). In producing the new varieties of bread wheats, in the results of the durum and triticales programs, and in research on quality, special effort is being made to enrich the germplasm bank with genes resistant to diseases that affect these crops in various parts of the world. The diversity of the CIMMYT spring bread wheat gene pool is probably the greatest in the world, and is the basis of its current success; but work continues to increase its yield potential further. Durum varietal development is becoming a primary thrust, particularly for North Africa and Near East countries where it is preferred for some local dishes. Another important feature of the program is work with the triticales, which are showing promising resistance to a number of diseases and encouraging nutritional properties. Chemical analysis reveals that some triticales lines are high in both total protein and lysine. Moreover, nutritional feeding studies have identified several lines that possess a protein efficiency rating as high as that for egg protein.

Training

6. Training continues to be one of the most important features of both the maize and wheat programs. About 65 trainees were at CIMMYT in 1971 and the number is expected to increase next year to about 75. Great emphasis is also placed on the development of staff for outreach programs and on international workshops. In September 1971, a wheat workshop attracted participants from 20 countries while the first international seminar on maize, also held in September, drew representatives from a like number of countries.

Outreach

7. CIMMYT's outreach activities, already extensive, are taking on new dimensions as it now concentrates effort on "regionalizing" its approach in support of country programs. The Center is currently assisting in the grouping of present national programs according to special criteria and additionally is taking over responsibility for technical direction of wheat and maize programs in several already established regional agricultural assistance efforts, such as the All-Indian Coordinated Wheat Program, the Pakistan Accelerated Wheat Production Program and the Inter-Asian Maize Program. Several programs are already operating under this arrangement in the Near and Middle East, West Pakistan, Central America and the Caribbean, and Argentina, and discussions are proceeding for similar programs in South East Asia, India and Turkey.

8. Creation of a regional germplasm pool for the high-elevation areas of the Andean zone is being undertaken in cooperation with the International Center of Tropical Agriculture (CIAT), initially involving Mexico, Colombia, Ecuador, Peru, and Bolivia. Similarly, a widely adapted germplasm pool is being developed for the West African region in cooperation with the International Institute of Tropical Agriculture (IITA), particularly for the new national maize programs in the Republic of Zaire. This may serve as a basis for the formation of high-yielding varieties for each of the countries in tropical West Africa and be a forerunner to an accelerated regional production program. The Inter-Asian Maize Program, headquartered in Thailand, is following a similar pattern in varietal improvement. Shipments of maize-breeding material from CIMMYT's germplasm bank were made to 34 countries during 1971, while the wheat program provided genetic materials to collaborators in 36 countries. These operations further strengthen the linkage with sister institutes and key national and regional networks.

Achievements

9. CIMMYT's achievements in catalyzing agricultural progress received international recognition in 1967, when the harvests in India and West Pakistan, based on the high-yielding dwarf wheats developed in Mexico, astounded the world in what came to be known as the "Green Revolution." There are now about 10 million ha of the dwarf variety grown in some 20 countries.

10. Success of the wheat program continues to be gratifying. Yields in 1971 have been excellent in North Africa and the Middle East, and India has

harvested its fourth consecutive record-breaking wheat crop. Total production in India is expected to go over 21 million metric tons, an increase of one million over that achieved in 1970, due mostly to the expansion of improved technology in the wheat-producing area, the largest part of which has been planted with varieties developed by reselection under Indian conditions. In West Pakistan, already self-sufficient, new varieties are being developed from West Pakistan and Mexican crosses, one of which was grown on a sizable commercial acreage last year. Other new varieties being developed there should play a significant role in the future as they are believed superior in disease-resistant qualities.

New Trends

11. In order to make a quick and significant contribution to world maize and wheat production, CIMMYT concentrated its initial efforts mainly in regions adequately supplied with rainfall or irrigation water. In these areas, dramatic increases in production were obtained, primarily with new high-yielding varieties responsive to new farming technology, including the efficient use of fertilizer and water. The most rapid spread of high-yielding varieties has commonly been among the larger farmers, mainly because they can afford the greatly increased outlays needed. In many irrigated areas now, however, the small farmer is realizing markedly increased production; significant increases, though of smaller magnitude, are being achieved in natural rainfall areas.

12. As part of its dynamic program policy, CIMMYT is now placing more emphasis on the problems of small farmers. The Center's Puebla Project is a direct result of this decision. Within the project, a specific aim is to help the small peasant farmer, particularly in Latin America, to grow maize with high lysine content.

13. In CIMMYT's wheat program during the past two years, greater emphasis has been placed on raising levels of production in dry-land farming areas, particularly in North Africa. Here, also, the emphasis is shifting toward help for the small farmers so they may benefit more from new improved varieties and technology.

14. While these program adjustments reflect growing concern about small farmers, income disparities, and employment, there will be no reduction in efforts to increase average maize and wheat yields and total output further and to help certain developing countries gain their own expertise and become self-sufficient in the production of these two cereals.

Financial Requirements

15. Estimated 1971 expenditures for CIMMYT's core (operating and capital budgets, and projected 1972 budget requirements, are as follows:

<u>Item</u>	<u>US\$ million</u>	
	<u>1971</u>	<u>1972</u>
Core	2.4	3.7
Capital	<u>1.9</u>	<u>1.3</u>
	<u>4.3</u>	<u>5.0</u>

16. Rough estimates of core and capital budget requirements over the next five years are as follows:

<u>Year</u>	<u>US\$ million</u>		
	<u>Core</u>	<u>Capital</u>	<u>Total</u>
1972	3.7	1.3	5.0
1973	4.2	0.4	4.6
1974	4.5	0.3	4.8
1975	4.8	0.2	5.0
1976	<u>5.1</u>	<u>0.5</u>	<u>5.6</u>
	<u>22.3</u>	<u>2.7</u>	<u>25.0</u>

INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI)
Los Banos, Philippines

Introduction

1. The International Rice Research Institute (IRRI), established in 1962, is the first of the international centers. It has had a substantial impact on countries in the Asian region, reflected not only by the direct adoption of the Center's varieties in many areas but also by the considerable amount of adaptive research now going on. IRRI's major achievement has been to develop rice varieties with high yield potential. Research is now concentrated on increasing disease resistance and developing other varietal improvements.

The Center

2. IRRI is an autonomous, non-profit, tax-exempt Philippine Corporation whose Director reports to an international Board of Trustees. It has a staff of 34 senior scientists and 90 junior scientists engaged in intensive multidisciplinary research on major impediments to improvement of the quantity and quality of rice production in Asia and, to a lesser extent, elsewhere in the world. It also strives to help develop strong national technical and related capabilities in other rice-growing countries and to stimulate international cooperation on important regional or worldwide problems. In 1972, the leadership of IRRI will change for the first time. Dr. Robert F. Chandler, Jr., Director of the Center since its founding, will retire on June 30 and Dr. Ralph W. Cummings, Sr., will succeed him.

3. IRRI's first big break-through came in 1967, following the development of a high-yielding semi-dwarf rice variety named IR8, which is still the standard for measuring high-yielding capacity. Since then, the Center has named its fifth rice variety and released it for general use. In addition to the five IRRI-named varieties, 10 genetic lines developed at IRRI, but not named by the Center, have also proved sufficiently successful in other countries to be released by them. Further, about 15 varieties have been developed from crosses with either the IRRI genetic lines or named varieties distributed by the Center. In total, they are now planted on an estimated eight million ha of land in some 20 countries. Considering the circumstances of rice culture -- the wide range of agro-climatic conditions and the associated insect-disease complexes under which rices are grown, and prevailing diversities in consumer preference -- this magnitude of spread and adoption in less than a decade is impressive progress. In certain areas, such as the Philippines and West Pakistan, where the spread has been greatest, self-sufficiency in rice production has been reached; but for many developing nations and regions, where the stress of adverse circumstances of population and food is most acute, only a beginning has been made in the big task of bringing about widespread displacement of the old varieties and technology lies ahead.

Current Programs

Research

4. IRRI has an intense varietal screening program to identify high protein semi-dwarf lines. Several lines have been identified which have about 20% higher protein content than IR8. These varieties appear very promising for, with the higher protein content, they yield only about 5% less than IR8. The ultimate objective is to produce varieties which combine high protein and favorable amino-acid balances with disease/insect resistance, high-yielding ability, and improved grain type and eating quality.

5. In an attempt to gain more information on factors holding down yields under rainfed conditions, 190 field experimental plots were set up in farmers' fields in 1971 in Bulacan and Nueva Ecija provinces. This program, which is being conducted jointly with the extension agency of the Government of the Philippines, will continue for several years and is expected to pave the way for a more substantial effort in the future to change farming practices.

Training

6. The Center's contribution to rice-producing nations is not limited to the direct food and income benefits accruing from development of new varieties and technology. Over the nine-year period 1962 through 1970, 545 research scholars and trainees from 38 countries have received a total of 491 man-years of training in 12 research disciplines (e.g., agronomy, varietal improvement, and entomology) and in special production-oriented programs. The training programs, degree and non-degree, are designed to meet manpower requirements to staff national programs. In India, Pakistan, and Indonesia, special in-country programs have been organized whereby IRRI scientists work side-by-side with national personnel. To ensure regular review of national programs, rapid exchange of information and ideas, and attention to priority concerns, IRRI arranges annual rice program reviews and periodic symposia. The most recent symposium (September 1971) was devoted to rice breeding and brought together 100 rice scientists from 20 countries.

Outreach

7. Both research and training work have outreach components, primarily concerned with national programs for rice improvement, particularly in India, Pakistan, and Indonesia. Linkage has also been strengthened with the International Center of Tropical Agriculture (CIAT) located in Latin America and with the International Institute of Tropical Agriculture (IITA) located in Africa. Emphasis on outreach efforts is also evidenced in the increasing visits made by resident staff members to interested governments.

New Trends

8. At the end of its first decade of operations, during which its research results and concepts completely changed long-term rice production

prospects for the monsoon tropics, IRRI is adjusting its programs to provide solutions for a wider range of problems associated with tropical rice production. Greater attention is being given to matters of upland and rain-fed paddy production, nutritional value of rice, consumer acceptance, broader genetic resistance to insect pests and disease, multiple cropping and systems of rice farming, and socioeconomic changes resulting from the widespread adoption of the new rice technology. While these programs adjustments reflect growing concern about diets, pesticide use, income disparities, and employment, there will be no reduction in the effort further to increase average yields and total output.

Financial Requirements

9. Estimated 1971 expenditures for IRRI's core (operating) and capital budgets, and projected 1972 budget requirements, are as follows:

<u>Item</u>	US\$ million	
	1971	1972
Core	2.3	2.5
Capital	0.3	0.4
	2.6	2.9

10. Rough estimates of core and capital budget requirements over the next five years are as follows:

<u>Year</u>	US\$ million		
	<u>Core</u>	<u>Capital</u>	<u>Total</u>
1972	2.5	0.4	2.9
1973	2.7	0.3	3.0
1974	2.9	0.3	3.2
1975	3.1	0.4	3.5
1976	3.3	0.5	3.8
	14.5	1.9	16.4

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL (CIAT)
(INTERNATIONAL CENTER OF TROPICAL AGRICULTURE)
Palmira, Colombia

Introduction

1. The International Center of Tropical Agriculture (CIAT) is a young Center just getting its programs under way. It deals with extremely difficult and wide-range problems to serve the needs of agriculture in the lowland tropics, with particular reference to Latin America. While CIAT is new, having been established in 1967, it has the advantage of building on a substantial base of experience. Evolving from the Cooperative Agricultural Program of the Rockefeller Foundation with the Government of Colombia, which dates back to 1950, it also draws heavily on the Instituto Colombiano Agropecuario (ICA), formed in 1963 as an outgrowth of the Cooperative Agricultural Program. Although the close alliance with ICA did much to give CIAT its early impetus, the Center is now becoming solidly established on its own and is making good progress in its research and training programs and in establishing links with the national agencies in the various developing countries which can benefit from CIAT's research.

The Center

2. CIAT is an autonomous, non-profit, tax-exempt Colombian Corporation whose Director reports to an international Board of Trustees. It is headquartered on a 522-ha farm near Palmira, provided by the Republic of Colombia, adjacent to an ICA station and a Faculty of Agriculture, part of the National University. Most of CIAT's headquarters buildings are still in the early stages of construction. It therefore carries out most of its research activities in Colombia in collaboration with ICA, particularly at the north coast station of Turipana in the fertile alluvial soils of the coastal plains, and at Carimagua, on the vast expanses of latosol soils of the Colombian Plains. When construction work at its headquarters near Palmira is completed in early 1973, it will be easier for CIAT to develop a more independent international status. Twenty-six senior and four junior scientists, of eight nationalities, are engaged in carrying out CIAT's research programs.

Current Programs

Research

3. Initially, CIAT is concentrating its efforts and resources on six somewhat neglected products for lowland farming -- beef, swine, rice, maize, tropical root crops, and food legumes. CIAT's goal is to develop or improve, as quickly as possible, productive and profitable systems for these products, particularly in Latin America, taking into account relevant economic and social factors.

4. Emphasis in the beef cattle program is on development of production systems for the extensive grassland areas located in alluvium soil zones, including coastal plains and river valleys, and in the latosol soil zones in the interior of South America. Colombia alone is estimated to have some 20 million ha of virtually undeveloped land of this type in the Colombian Llanos and there are even larger areas in Venezuela and Brazil.
5. The development of efficient swine production systems within the lowland tropics depends to a great degree upon finding economical ways to use available feedstuffs. Feed costs there now run from 80 to 90% of the total cost of pork production.
6. Rice research, based on the results achieved at IRRI, highlights the production of high-yielding semi-dwarf varieties having superior cooking and milling qualities and stable resistance to rice blast disease and development of cultural practices for responsive varieties grown under both irrigated and upland conditions.
7. CIAT's maize program, linked with CIMMYT, focuses on the crop in the Andean Zone and in the lowland tropics. Specific research has concentrated on protein quality.
8. CIAT's tropical root crop program centers mainly on cassava production systems and is directed primarily at development of varieties with higher yields, with emphasis on those with higher nutritive value, i.e., increased protein content and quality, and higher starch content in the root.
9. Research in food legumes is directed toward increased yields of dry-beans and soybeans. This emphasis is divided between the creation of improved varieties and improved "production packages."

Training

10. Training activities concentrate on providing learning experiences for selected professionals from various countries, some of whom are being trained to carry on production-oriented research in their own organizations, while others will become crop or animal production specialists, helping to translate and communicate new agricultural technology to the farmers. In 1970, 69 persons were enrolled in CIAT's various training activities, 16 of whom were continued into 1971. In terms of functional specialization, 40 were in plant science, 21 in animal science, and the remaining eight in economics, engineering, and communication.
11. CIAT has also developed a 12-month course for crop production specialists. The first class got underway in March 1971, with 13 trainees in attendance from six countries. The next course is scheduled to start in August 1972. In 1971, 11 trainees completed CIAT's livestock production

specialist training program, an experimental project to develop and test appropriate training methods. As a result, three new 12-month courses have been scheduled for trainees now being selected from Latin American countries. Also in the planning stage are symposia on swine production in the tropics and on the potentials for development of a beef cattle industry in the tropical lowlands.

Outreach

12. CIAT is beginning to develop international outreach programs, but, except for rice and maize and, to a lesser extent, swine, where definite links exist to work in other Latin American countries, activities are still primarily carried out within Colombia and confined to cooperation with ICA. The Center has been successful, however, in strengthening its ties with its sister institutions -- with the International Maize and Wheat Improvement Center (CIMMYT) in the Andean Zone Maize Program; with the International Rice Research Institute (IRRI) in the development of high nutritive value rice varieties adapted to Latin American consumer tastes; and with the International Institute of Tropical Agriculture (IITA) in regard to cassava production.

Achievements

13. CIAT's rice program has recently released two new varieties designed for the Latin American market, with yields that challenge the best obtained by IRRI. In connection with that release, and in an attempt to help develop the expanding rice market in Latin America, CIAT also sponsored a seminar on rice policies in Latin America in October 1971. This seminar provided opportunity for policy makers and national planning officers to learn about the potential of the varieties for increasing production and to consider the economic and social consequences of such increases.

14. The swine program is developing new life-cycle rations based on native tropical foods, such as bananas and cassava, while beef cattle specialists have found that, by using the proper package of practices, it is possible to increase by two or three times the productivity and profitability of beef animals on tropical pastures. Additionally, the Center has already brought together the world's best germplasm bank of cassava.

15. CIAT's training record is also noteworthy. From 1968 to 1971, it trained a total of 120 persons from 14 countries. Of these, 53 participated in post-graduate training, 44 were production specialists, 15 were in the research fellow and scholar component, and eight were in miscellaneous areas.

New Trends

16. The efficiency of small farm enterprises often hinges on integrating the production of several commodities into a single system. Such farm

units lend themselves to crop rotation, utilization of crop residues and surplus by livestock, and intensification of labor input while minimizing direct operating and capital expenditures. The primary initial thrust of CIAT is directed towards developing commodity production systems for certain crops and livestock species. This will continue as the principal activity until an adequate technological base is established for developing more economical commodity production systems and a nucleus of production specialists is formed to apply this technology. At the same time, however, CIAT will be concerned with determining how these commodity production systems, and others, fit into total farm enterprises, considering the economic realities of practical farm systems and the possible profit advantages of multi-crop-livestock enterprises.

Financial Requirements

17. Estimated 1971 expenditures for core (operating) and capital budgets, and projected 1972 budget requirements, are as follows:

<u>Item</u>	<u>US\$ million</u>	
	<u>1971</u>	<u>1972</u>
Core	2.5	2.8
Capital	n.a. ^{1/}	n.a. ^{1/}

^{1/} Excludes capital estimates for which firm figures are not available.

18. Rough estimates of core and capital budget requirements over the next five years are as follows:

<u>Year</u>	<u>US\$ million</u>		
	<u>Core</u>	<u>Capital</u>	<u>Total</u>
1972	2.8	n.a.	2.8 ^{1/}
1973	3.3	0.5	3.8
1974	3.7	0.3	4.0
1975	4.2	0.2	4.4
1976	4.6	0.2	4.8
	<u>18.6</u>	<u>1.2</u>	<u>19.8</u>

^{1/} Excludes capital requirements for which firm figures are not available.

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE (IITA)
Ibadan, Nigeria

Introduction

1. The International Institute of Tropical Agriculture (IITA), established in 1967, is the youngest of the major existing international centers but has perhaps the most complex and difficult task of any of them -- to solve the problems of production of annual food crops in the low hot tropics (less than 2,000 ft. altitude and where rainfall exceeds evaporation for more than six months of the year). To accomplish its mission, IITA will seek to develop a cropping system to replace the bush-fallow as a means of maintaining soil fertility. It is also undertaking, or planning to undertake, crop improvement programs, for use in the humid tropics, for some oilseeds (principally soybeans), selected grain legumes (e.g., cowpeas, lima beans, and pigeon peas), important root and tuber crops (cassava, yams, cocoyams, sweet potatoes), and selected cereals (maize and rice).

The Center

2. IITA is an autonomous, non-profit, tax-exempt Nigerian corporation whose Director reports to an international Board of Trustees, consisting of 15 members. Recruitment of staff began in late 1968 and 36 of a proposed complement of 43 are now in post.

3. The transitional year for IITA was 1971, when the move into temporary quarters on the principal headquarters site was completed. During the year programs were initiated, staff was developed and experimental areas were cleared and established. In 1972, when all buildings, except the Plant Growth and Radioisotope facilities, are expected to be finished, IITA will shift its major emphasis from site development and the building of the foundations of reserach programs to full program implementation.

4. IITA's broad objectives are to improve the quantity and quality of food crop production and to develop soil and crop management practices required for a stable, permanent and productive agriculture.

Current Programs

Research

5. An impressive volume of highly useful data, particularly on rice and maize, has resulted from IITA's research efforts during 1971, and the grain legume and root and tuber programs are also well under way. Some progress on the cropping systems program is also being made, but this program has lagged somewhat behind the rice and maize work, primarily because the two commodity programs are more firmly based on existing research and because of delays in staffing.

Training

6. IITA attaches particular importance to its training responsibilities designed to increase the number of qualified and well motivated staff for practical crop improvement programs in the humid tropics. Already in 1971, the Center inaugurated a special vacation training program for outstanding undergraduates and first year graduate students from four Nigerian universities. In addition, IITA held its first workshop in 1970, a two-week session for plant parasitologists from Africa. At least three workshops and conferences are planned for 1972.

Outreach

7. Links have been established between IITA and other African research programs, including cooperative efforts with the Republic of Zaire, Sierre Leone, the West African Rice Development Association, and the Institute de Recherches Agronomiques Tropicales et des Cultures Vivrieres (IRAT). In cooperation with CIMMYT and USAID, IITA is assisting the Government of Zaire in a nationwide 10-year maize production improvement effort designed to eliminate the chronic maize shortage there. In addition to the links with CIMMYT for maize programs, IITA intends to establish links with CIAT for cassave and with IRRI for rice.

Achievements

8. Although IITA is too new for its research accomplishments to be judged, it already has achievements to its credit. Considerable progress has been made in maize development and it is estimated that a new variety will be released within approximately two years. Significant gains have also been made in the collection, selection, and systematic testing of African varieties of rice.

9. IITA was also a joint sponsor with the Ford Foundation and IRAT of a highly successful series of seminars initiated in 1970. The seminars helped to identify the status of agricultural research being carried out in West African countries, to determine where the gaps might be, and to establish a professional and working relationship among agricultural scientists in the region. The seminars were concluded in mid-1971, and plans are under way to organize a similar series on related topics beginning in 1972.

Financial Requirements

10. Estimated 1971 expenditures for IITA's core (operating) and capital budgets, and projected 1972 budget requirements, are as follows:

<u>Item</u>	<u>US\$ million</u>	
	<u>1971</u>	<u>1972</u>
Core	2.2	3.3
Capital	n.a. ^{1/}	0.6 ^{2/}
		<u>3.9</u>

^{1/} IITA expected to receive US\$3.4 million during 1971 from funds previously allocated.

^{2/} Excludes over-run on construction costs.

11. Projected five-year operating (core) and capital budget requirements are as follows:

<u>Year</u>	<u>US\$ million</u>		
	<u>Core</u>	<u>Capital</u>	<u>Total</u>
1972	3.3	0.6 ^{1/}	3.9
1973	3.7	0.3	4.0
1974	4.2	0.2	4.4
1975	4.7	0.3	5.0
1976	5.1	0.4	5.5
	<u>21.0</u>	<u>1.8</u>	<u>22.8</u>

1/ Excludes over-run on construction costs.

CENTRO INTERNACIONAL DE PAPA (CIP)
INTERNATIONAL POTATO CENTER
Lima, Peru

Introduction

1. The potato is one of the world's principal food crops, and in the Andean region of South America where it originated it forms the major part of the diet. Among major food crops, it ranks first in calorie production per acre per day and fourth in protein; the quality of its protein compares favorably with that of casein, considered the standard. An important characteristic of the potato is that it has a much higher range of adaptability to climate than many other important food crops. It is one of the few that produces well at high altitudes -- above 10,000 feet -- and it appears to have the potential to adapt to tropical conditions as well.
2. Following the introduction of the potato into Europe, its cultivation spread to most parts of the world; and in recent years, the land under potato cultivation has increased substantially. For example, in the past decade some Asian and African countries not normally thought of as potato producers have almost doubled the area of production. Yields, however, are much lower than in Europe or North America, since the varieties used in Africa and Asia come from countries where they were developed specifically for the climates of northern latitudes.
3. To develop suitable varieties, it is necessary to draw from the genetic wealth represented by the tremendous diversity of varieties in the native habitat of the potato, from which it should be possible to build strains suited to tropical conditions as well as to improve varieties grown elsewhere. Up to now, however, the dearth of research facilities in the area where the potato originated has hampered work involving genetic variability. Moreover, plant exploration programs in countries of northern latitudes have had serious limitations because much of the collected material would not grow well under conditions there.
4. With the emergence of a strong national potato program in Peru, a base was created for the establishment of an International Potato Center (CIP) to provide a link between the limited but growing scientific capabilities of developing countries and the resources of Europe and North America. Since present high-producing varieties were all developed from only part of the genetic varieties that exist in the Andean region of South America, it was considered that a Center based in that region would be in the best position to catalyze the development and utilization of genetic wealth for all countries.
5. CIP was therefore formally created in 1967 as an International Center. Efforts since that time have been directed toward providing a physical plant for its operations, toward planning and establishing programs that would have an international impact, and toward interesting donors in providing long-range financial support.

The Center

6. The headquarters of CIP are being established in the outskirts of Lima, adjacent to the National Agrarian University and the National Argicultural Research Center, in a new building being constructed for it by the Government of Peru. The germplasm facility is being located in the Central Sierra, which is the ecological hub of the tuber-bearing solanum species, and experimental land on the coast and in the highlands is being made available by the Government.
7. Under the terms of an agreement signed on January 20, 1971, the Center was granted full autonomy and tax-exempt status, and was ensured operational privileges in Peru similar to those enjoyed by other international crop improvement centers in their host countries. By the same agreement, North Carolina State University, which has been involved in development of Peruvian agriculture through USAID programs for about 15 years, accepted a five-year sponsorship of the Center, and a Director and five of 10 members of the international Board of Directors have been appointed.
8. Although CIP is similar to other international crop improvement centers in its general organization, its program will allow a somewhat different pattern for staffing and development of facilities. Since work will focus on the collection, maintenance, and availability of germplasm, there will be no initial need for large major capital investments in physical plant facilities at headquarters. Instead, in the utilization of the genetic material, a number of scientists and their present facilities outside Peru will be drawn into the early work program of the Center through linkage projects. A core staff of six scientists (four senior and two junior), properly supported by technicians and facilities, will be sufficient to begin operation although, at full development, nine senior and nine junior scientists will be required. Institutions outside Peru with projects linked to the Center will directly involve approximately 30 more scientists in initial programs.
9. CIP's broad objective will be to bring about substantially increased and more efficient potato production in the developing world. Its initial emphasis, however, will be on germplasm, its utilization in research and the training of people working with potatoes.

The Proposed Program

Research

10. The germplasm register of the Center contains 2,436 entities, and about 15 hills of each will be planted during the coming growing season in order to have sufficient tuber material for the selection programs expected to become associated with the Center in 1972. Provision will also be made for post-harvest work, including research concerning methods of handling, storage, transport and final use. The program of the Center will be developed

through linkages to institutions where facilities and competence now exist for priority projects. Operations will then be orientated to meet the needs of potato improvement programs in developing countries. To get this work under way, contacts are presently being established with institutions in Germany, Great Britain, the Netherlands and the United States. Arrangements are also being made to merge the International Potato Program of the Rockefeller Foundation, currently based in Mexico, which has been associated with potato improvement work in many developing countries, with that of CIP.

Training

11. The training and communication activities of the Center will aim at developing interaction between scientists and workers of all countries and institutions involved with potatoes. This network of interaction will include newsletters and publications, short courses, symposia, and the development of a directory of scientists in this field.

12. A major long-range function of the Center will be the training of scientists to assist in programs and projects in developing countries, to advise on projects when help is requested, and to develop and conduct short courses on a wide range of topics important in potato research. The Center will also be a locus for thesis programs for Latin American and other graduate students.

Outreach

13. Outreach activities will initially focus on Latin America, where considerable work at the national level is already in progress. However, as the Center develops, it will backstop many national programs in other developing areas, in addition to Latin America, where potatoes are important. For example, CIP will build up visual aid material for the identification of mineral nutrition deficiencies or disease symptoms for use in seed production programs, and will compile an up-to-date bibliography on potato literature. Another project will be the development of visual information sheets on economically feasible potato practices for use by vast numbers of illiterate potato producers.

Financial Requirements

14. The estimated budget requirements for CIP in 1972 is approximately \$640,000, of which \$490,000 is for core expenditures. Rough estimates of core and capital budget requirements over the next five years are as follows:

<u>Year</u>	US\$ million		
	Core	Capital	Total
1972	0.6	<u>1/</u>	0.6
1973	1.0	0.0	1.0
1974	1.2	0.1	1.3
1975	1.3	0.0	1.3
1976	<u>1.3</u>	<u>0.1</u>	<u>1.4</u>
	<u>5.4</u>	<u>0.2</u>	<u>5.6</u>

1/ Includes US\$50,000 for capital requirements.

INTERNATIONAL CROPS RESEARCH INSTITUTE
FOR THE
SEMI-ARID TROPICS (ICRISAT)

Introduction

1. The tropical dryland farming areas lie between the more humid forest zones near the equator and the deserts of the sub-tropics. This semi-arid zone extends to all tropical countries that are subject to a rainfall pattern with a limited duration of two to seven months per year. The main cereal crops are sorghum and millet, while legumes include pigeon pea, cowpea and various Phaseolus beans, with chick peas important where there is a cool season. Groundnuts and sesame are raised as oil seeds and cotton is often cultivated as a fibre crop for sale. Large numbers of people live in these areas and obtain what is often only a bare subsistence from their farming operations. Since, for the majority of these people, an improvement in their standards of living can come only from farming the land, there is urgent need to improve their production efficiency and to develop new farming systems. A task force was therefore commissioned by the Technical Advisory Committee of the Consultative Group on International Agricultural Research to study the feasibility of establishing an international institute to deal with these problems on a worldwide basis.

2. The task force was composed of Dr. Ralph Cummings of the Ford Foundation; Dr. Hugh Doggett of the International Development Research Centre in Ottawa; and Dr. L. Sauger, Director of the Centre de Recherches Agronomiques at Bambey, Senegal. It recommended the creation of an International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), probably to be located in India. As envisioned, the proposed Center would serve as a world headquarters for the improvement of sorghum, millet, pigeon peas and chick peas; it would also promote the development and demonstration of improved cropping patterns and systems of farming to optimize the use of human and natural resources in the semi-arid tropical regions. Other pulse crops, though important, would not receive major attention initially, although they might be included in adaptive tests and as parts of the rotation systems employed.

The Proposed Center

3. The proposed Center would be developed on the general pattern and principles of the International Rice Research Institute (IRRI), with suitable modification. Present planning calls for a total senior staff of about 36, five of whom would be in an administrative capacity and the rest scientists.

4. The Center is intended to be governed by an international Board of Directors selected from among outstanding agricultural and scientific leaders in the host country, other countries of the ecological zones which the Center would serve, and from agencies providing major financial support. An interim Board might be designated to serve until the permanent Board can be fully constituted. While the actual site of the proposed Center has not yet been chosen, locations in India have been found that meet the main requirements for successful operations.

Proposed Programs

Research

5. Improvement in the production of selected grain legumes is expected to assume a high priority in the proposed Center's program. While there is great scope for improvement of the cereal grains of this region, the scope for improvement of the grain legumes is even greater and the need more acute, since the diet of the people of the region is already short in both quantity and quality of protein. For all of the crops concerned, however, consideration will have to be given to such characteristics as the most efficient plant type, time of maturity in relation to rainfall patterns, photo-period response, grain type and quality, protein content and amino acid balance, resistance to insects and disease, response to moisture and other environmental stress, weed control, cultural practices, and food technology.

6. In developing farming systems, work would involve research in selected experimental but real situations and in basic studies. Effort would also be directed at keeping workers in individual countries fully informed on methods and results obtained elsewhere. The proposed Center would not attempt to develop a wide range of specific farming systems for the various parts of the zones under consideration, but would stimulate and promote consideration and serious attack on the problem by scientists in those regions.

Training

7. In addition to its research programs, the proposed Center would train relevant research and production staff through in-service programs, collaboration of staff with scientists from cooperating nations, specialized courses, and post-graduate study and research, in cooperation with universities. It would also strive to improve communications among the scientists of the countries and regions concerned.

Outreach

8. The proposed Center would be set up so that it could effectively strengthen and support national programs, both in the host country and in other nations; it would not compete with or replace national programs. It would also develop, maintain, and supply services and research materials not generally available in individual countries and which, in most cases, would be beyond country capabilities. Further, it would expect to develop close linkages with national and regional programs in all parts of the world having similar ranges of ecological conditions and in which the crops on which it is working appear to have high potential value, principally in Africa, South Asia and Latin America.

9. Consideration would also be given to strengthening a specific network of research stations throughout the belt of dryland tropics, including four centers in Africa, to act as "relay stations." Each would have a particular

role to play according to its ecological situation. Unless such a chain is associated with the proposed Center, ICRISAT's effectiveness in developing improved varieties could be restricted, since it is vital that applied research be conducted in areas where the crops are actually to be grown.

Financial Requirements

10. Projections of ICRISAT's financial requirements at this stage must be highly tentative. It is expected, however, that in the period 1972-76, expenditures will be approximately as follows:

<u>Year</u>	<u>US\$ million</u>		
	<u>Core</u>	<u>Capital</u>	<u>Total</u>
1972	0.5 ^{1/}	--	0.5
1973	1.0	3.0	4.0
1974	1.6	5.0	6.6
1975	1.9	2.0	3.9
1976	2.5	1.0	3.5
	<u>7.5</u>	<u>11.0</u>	<u>18.5</u>

^{1/} Initial fund.

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International Rice Research Institute
Los Baños, The Philippines

ADMINISTRATIVE MANAGEMENT REVIEW

January 11, 1974

A. G. Samonte, University of the Philippines
at Los Baños
W. P. Gormbley, The Ford Foundation
M. E. Ruddy, The World Bank

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ADMINISTRATIVE MANAGEMENT REVIEW

The International Rice Research Institute has, as is true of most organizations which have not changed leadership for more than a decade, questioned whether its current management and administrative services set-up is organized to meet the changing needs of the Institute in the decade ahead. The management and administrative services set-up of the Institute has provided over these formative years of institute life excellent service which is attested to by all who know of the Institute's work or who have had the privilege of working at the Institute in Los Baños. But with new programs, new personnel, new methods of funding, an expanding international program, an expanding physical property and needs for tighter control of dollars in a world of high inflation, the directors have asked for assurance that the management and administrative services will be up to these demands in the months and years ahead.

The Director, Dr. Nyle Brady has with his staff undertaken a self-study of these needs and has in some specialized areas such as salary administration, staffing patterns, personnel administration and organization utilized the help of private Philippine consultants. As an additional and perhaps final check of their findings to-date, Dr. Brady requested the help of the University of the Philippines at Los Baños, The World Bank and The Ford Foundation, all of which have had long and close relationships with the Institute, to establish a team of knowledgeable individuals to conduct a review of the Administrative Management of IRRI. All three agencies responded favorably and on January 6, 1974, Chancellor Abelardo G. Samonte, University of the Philippines at Los Baños; Mr. Michael E. Ruddy, The World Bank; and Dr. William P. Gormbley, The Ford Foundation assembled at IRRI to begin their assignment.

SCOPE OF THE REVIEW

Dr. Brady in his letter to the review team stated the major objectives of the review to be:

1. To evaluate the over-all organizational and administrative structure of IRRI and to recommend pertinent changes for improvement.
2. To evaluate IRRI's current personnel policies and procedures and, to make suggestions for improvement.
3. To evaluate the operational procedures for functions such as:
 - a. Buildings and properties maintenance

- b. Purchasing
 - c. Accounting
 - d. Fiscal management
 - e. Budget development
 - f. Housing, dining and dormitories
4. To ascertain the advisability of an institute-wide approach to such needs as:
 - a. Computer services
 - b. Chemical analyses
 - c. Document reproduction
 5. To evaluate any other aspects of IRRI's operations which in your judgment are hampering IRRI's ability to function as an effective research and training institute.

PROCEDURES AND MATERIALS USED

The Review Team was provided a briefing book prepared by the Institute Directorate entitled A Brief Summary of the Organization and Administration of IRRI which not only provided an introduction to the organization and to the people and their assignments but highlighted some areas of concern already identified. In addition, the Review Team was given copies of the various Philippine consultants reports and of a variety of IRRI publications. During the course of the review, the team also requested and received copies of the outside Auditors reports, various directors memos on policies of the Institute, copies of operating budgets, copies of various administrative forms and flow charts for their use.

The Review Team met with the directorate as a group and separately. Meetings were also held with the various research department heads, heads of the supporting services and the heads and supervisors of the various administrative units. All members of the staff had been briefed by Dr. Brady on the purpose of the team's visit and generally came to the meetings with the Review Team prepared to comment on their individual and collective concerns with the Institute's management and administrative services. Besides giving each person opportunity to say what he/she wished the team to hear, the team members raised questions and

issues of their own with the staff. The Review Team believes that the exchange between it and the members of the staff was frank, and directed towards finding solutions to problems and towards assuring high performance in the future, rather than recanting old gripes and trying to hold on to the past.

The team members met frequently in executive sessions to assess their progress, to exchange impressions and to plan the next phase of interview and procedures. Supporting data was requested where deemed necessary and individuals were revisited in order to check facts or to develop new lines of review. At all times, the team was aware of its role as a reviewer and met frequently with Dr. Brady to insure that its interrogations was not interfering with the ongoing work of the Institute and that its efforts were not being misinterrupted by the staff.

It was the sense of the Review Team that agenda items 1, 2 and 3 of Dr. Brady's charge to the team were so central to IRRI's future that we would do well to deal fully with these, even at the expense of not responding to all matters of interest to the Director. The team thus managed its time accordingly and in consequence is able to respond only partially to agenda item 3 and not at all to agenda item 4.

This report was prepared in draft after four days of work and was reviewed in this form with the Directorate before being released in its final form. While many have contributed, the responsibility for the final report and its recommendation rest clearly on the shoulders of the Review Team.

The Current Management Situation.

The International Rice Research Institute (IRRI) was organized in 1960 with two primary functions, namely: research and training on rice. In the sixties, it gained dramatic success by concentrating its efforts on increasing the yield on high quality rice in irrigated lands. With the continuing challenges and resulting demands of the rice growing countries of the world, IRRI's activities have expanded to include research on rainfed and upland rice and on cropping systems in which rice is grown.

IRRI is organized into two general geographical programs:

1. The core program concentrated at Los Baños which accounts for about 2/3 of the Institute's budget, employs 33 senior scientists, 13 senior administrative staff, and 226 junior supporting administrative and operational personnel; and

2. The approximately 10 outreach or Cooperative Country Projects (CCP) in which there are 28 senior scientist positions of which 20 are filled, with much of their financing coming from outside funding agencies and the cooperating country.

The Chief Executive of the IRRI is the Director who is responsible to a Board of Trustees. Assisting him is an Associate Director who spends about three-quarters of his time as head of the CCP or outreach program. A few years ago, an Assistant Director for Training was appointed and very recently a second Assistant Director was appointed with the primary function of research coordination.

The Associate and Assistant Directors, while having particular functions or line responsibilities, are actually staff officers in the Office of the Director. The 13 research departments are headed by senior scientists who are directly responsible to the Director.

Administrative services include the offices concerned with accounting, property and inventory, purchasing and shipments travel, motor pool dispatch, security, office services, personnel, building and grounds maintenance, and self-sustaining activities. Currently, one person is filling both the Treasurer/Controller and Executive Officer positions.

Organizational Problems of IRRI.

At the outset, it is necessary to point out certain changes in the management situation. First, as previously mentioned, the goals of IRRI have been broadened, leading to an increased workload, the need for additional personnel, and new patterns or methods of organization. Secondly, the financing of the IRRI has become more complex. While in the initial period IRRI was jointly financed by the Ford and Rockefeller Foundations, IRRI today must get its funds from a Consultative Group composed of approximately 20 independent donors. Moreover, IRRI has lost the unique position as the only international research institute; today, it must compete for funds available for international agricultural research with at least 7 other institutes of similar status.

Under this changed situation, the management of IRRI has become more complex and difficult; it can not be as relaxed and informal as was its counterpart in the initial years of the Institute's operations.

The present Directorate has done well under these circumstances; it appreciates the primary purpose of the Institute as a research organization, and its efforts have been directed towards the support and improvement of the substantive research programs of IRRI.

Considering, however, the afore-mentioned factors that must condition its general management response, the Directorate must exert more efforts to reorient the values and attitudes of the Institute's personnel, especially the research scientists, to the organization structure and approaches that are necessary for the effective achievement of the expanded goals of the Institute. In this task, the establishment of greater rapport and understanding between the Directorate and research staff as well as with the administrative support personnel is very essential.

It has been observed that one of the primary characteristics of IRRI in its initial period under the first Director had been the great degree of informality in organization and management. Many administrative decisions were delegated to the department heads and even the individual scientist had a large area of discretion. But faced with the demands of the new management situation, the present Director must provide more formal structures, policies, and procedures. These moves may likely be perceived by the professional staff, especially the oldtimers, as a trend toward centralism and a diminution of individual research freedom. They may also decry the lack of opportunity for direct and immediate communication with the Director which they have been used to in the initial period.

It is our judgment that the present Director is on the right track in trying to tighten up the organizational structure, policies, and procedures of the Institute. The more or less informal organization in effect during the time of the first Director was effective because of the smaller size of the staff and of operations then, but under the present situation, the Director has got to make organizational adjustments or changes to meet the new conditions, needs and problems of the Institute.

It is one thing, however, to have the right orientation and another thing to getting it understood, accepted, and translated into action. Thus, it is suggested that the Director adopts ways and means to effectively achieve such end.

First, the Director should delegate more authority to his subordinates. His desire to get a quick feel of the Institute's activities, coupled with the need to deal with many individual issues and problems arising from the interim period when IRRI was without a regular director may have justified his initial attempts to get involved in many administrative details. This could have been perceived rightly or wrongly by the professional and administrative personnel as too much centralization or even lack of confidence in their abilities. We believe that the Director should now take quick and concrete steps to diffuse the centralized locus of decision-making. He should now be willing to let

his assistants make decisions within their area of competence, of course, under overall policies set by him; in fact, he should even be willing to allow for mistakes as the assistants develop their capability to exercise such delegated authority. In the process, there will be a greater confidence of the assistants in themselves and in the central administration.

Secondly, the Director must open more channels of communication including some formal communication lines like regularized staff meetings. These meetings should extend to department heads and the senior administrative officers. In that way, members of the organization will, through their involvement in collegial decision-making, be more properly oriented to what is going on and better able to understand the rationale for changes in the organizational structure, policies and procedures. In fact, before any such changes are formally adopted, they should be presented in staff meetings to enable staff members to express their ideas, react, and give suggestions for improvements. All these will strengthen rapport between the Director and his subordinates and build up confidence between them. This interaction through staff meetings can be complemented by general dissemination of decisions and organization changes and other personnel matters to every officer and employee in the Institute through varied means including perhaps an expanded IRRI Calendar or house organ.

Thirdly, as a complement to improve communication and staff participation in decision-making, is the need to have a system of goal determination and program planning. Involvement of personnel at all levels including collegial decision-making in the directorate under the leadership of the Director should provide a good base for goal setting and management planning. Such an approach could also be very useful in effecting shifts in approaches and in undertaking and coordinating research. In this way, the senior scientists in the different departments would not feel that the multi-disciplinary teams for multiple cropping, GEU, etc. are new activities merely added or superimposed on what they consider as their traditional "mainstream research activities". Instead the process of consultative management would make them more responsive to the integration of all research activities and to the major thrusts and priorities of the Institute. If the scientists are thus involved, there will be greater chances of understanding, acceptance, and implementation of new programs and approaches.

The Director of the Institute must enhance his position not only as administrative head but even more so as scientific leader. Participation techniques of decision-making, particularly in the research area, we believe, will increase his standing as a scientific leader in the eyes of the senior scientists. To accomplish this, he will have to delegate many of the administrative details to his administrative subordinates while maintaining

a system of general control. By being freed from the day to day administrative detail, he should then be able to concentrate on major policy problems and to take the leadership in the planning and programming of substantive research activities.

Certain structural changes are being proposed as depicted in the attached chart. Under this set-up, activities and operations of the Institute will be divided into four areas, namely: (1) research, (2) education and communication, (3) international programs, and (4) administration. To maintain and enhance his scientific leadership, the Director should assume the responsibility for the direction of the entire research program of IRRI. We do not believe that at this time this responsibility can be shared. This means that all research departments and programs will report directly to him. The Assistant Director - Research Coordination will assist the Director in promoting interdepartmental research activity. In addition, the Assistant Director will assume the direct supervision of the Experimental Farm and the Department of Statistics. The Assistant Director will also assume responsibility for the operations of the centralized analytical laboratories if and when established and for the equipment and instrument maintenance unit now located in the laboratory building.

The Director should retain responsibility for external relations with major organizations and key officials. But he should delegate the line supervision on matters of education and communication to an Assistant Director.

The Review Team is recommending that the responsibilities of the Assistant Director - Training be expanded and that the position be retitled Education and Communications. We would thus see the consolidation under the Assistant Director all of the activities that relate to this area of IRRI operations, i.e., Conferences, Training Programs including the Department of Rice Production, Training and Research, the Information Services Department, the Library and Documentation Center and the Self-Sustaining Operations, all activities dealing with visitors and the maintenance of educational relations with the University of the Philippines at Los Baños.

We believe that the growth of IRRI's work in technological transfer and its growth in international operations will require a far more involved and sophisticated approach in Education and Communications than IRRI has to-date utilized. The facilities, equipment and people now devoted to some phase of education and/or communications are substantial. To prevent conflict and duplication and to maximize effort will take careful coordination of all who work in this area and will require more than the collegial coordination now in effect. We believe that the changes recommended are also in line with the need to recognize on the

Directors immediate staff the fact that the dissemination and utilization of the tremendous knowledge on rice generated at IRRI is one of the key goals over the next decade.

A further word is perhaps necessary to explain the placement of Self-Sustaining operations under Education and Communications rather than leaving it in its traditional place in Administration. A review of this unit finds that it deals mostly with visitors and trainees. Only its responsibilities for staff housing involves it with facilities and people who are not temporarily assigned to IRRI in some visitor or trainee role. We believe that Ms. Pascual's experience in dealing with trainees and proving services to conferees would be far more useful to the Education and Communications staff than to those in Administration. We were further led to this conclusion when we found that except for the minimal supervision of the Executive Officer, Ms. Pascual operates almost independently of and makes little, if any, use of other administrative services. We thus find little to hold her to Administration and much to add her valuable know-how to Education and Communications.

The outreach or international programs should be the primary responsibility of the present Associate Director and it is recommended that the other functions currently performed by the Associate Director be minimized so he can concentrate on this full-time in the outreach program. In carrying out this assignment, the Associate Director will need to work closely with the various research departments in order to gain their cooperation and to direct their efforts on international problems.

As the panel believes that the major share of the Director's time should be reserved for program direction, interaction with the scientific staff, external relations and dealing with the Consultative Group matters, it strongly recommends that the position of Assistant Director for Administration be established in order to relieve the director of the day involvement in most administrative and financial matters. Our recommendation is to assign to this new Assistant Director management responsibilities for personnel, administrative services, and accounting and finance.

The present Executive Officer position does not have sufficient stature to make key decisions stick and to deal effectively with the various heads, supervisors and Directors. Raising the status of this key activity would make the incumbent individual a full-pledged member of the top management team. We note that at present, the Executive Officer is not invited to the meetings of the directorate.

The Assistant Director for Administration will have three principal assistants, namely:

1. Controller (replacing the present Treasurer/Comptroller), who would have direct supervision of (a) accounting, (b) budgets and contracts, and (c) banking and cash management.
2. Personnel Manager who would be in charge of the recruiting and employment of personnel, salary administration, and processing and recording of personnel papers except those of the scientists who would still be recruited and selected directly by the Office of the Director in concert with Department Heads.
3. General Services Manager which would have supervision of (a) transportation services, (b) purchasing, (c) building maintenance and construction, and (d) office services.

It is believed that this new organizational structure will greatly assist the Director in effectively carrying out the measures that we have previously outlined, and in making changes in IRRI's policies, programs and procedures to effectively cope with the new demands on IRRI.

PERSONNEL MANAGEMENT

The personnel function at IRRI has not been the province of any one individual.

Personnel policies and procedures have not evolved in an orderly, systemic and sustained manner nor have they been disseminated to the staff in a meaningful manner. Rather, IRRI has evolved those personnel policies, procedures and practices it has on a crisis or problem basis with the Director sharing responsibility with individual department heads and has been disseminated to personnel information on a limited "need to know" basis. While IRRI was small, this worked satisfactorily. Even as the staff at IRRI has grown, the style of management which placed great emphasis on the freedom of the individual department head or supervisor to manage his/her own affairs and which counted on the collegial relationship among these managers to bring about uniformity, provided a rationale within which personnel matters could be handled relatively effectively.

However, for today's IRRI with its many more people, with a new director answerable to a more active Board of Trustees and to a donor group of approximately 20 agencies all asking for maximum utilization of staff and staff dollars, with an expansion of IRRI's goals and programs and with staff at 10-20 locations other than Los Baños, this approach to personnel matters cannot continue for long without becoming a serious impediment to IRRI's operations and growth. Recommending change is too often taken as criticism of the past or as a signal that currently things are in a sorry shape. The Review Team is therefore quick to affirm that it does not find the personnel of IRRI in great disarray, demoralized, or unable to carry out its assignment. The staff is concerned that in the change over of Directors its interest and concerns are not lost from sight.

The Review Team is convinced that the management of IRRI is genuinely concerned about the personnel situation, recognizes its importance and is fast becoming knowledgeable about the concerns and problems of the staff. It has already engaged a firm of Philippine consultants to review salary, salary grades, and salary procedures and policies for the 728 support and service personnel of IRRI. It has hired an experienced personnel manager. The consultant's studies have been made and a complete and detailed set of recommended actions to correct salary inequities, and install sound salary procedures to forestall such happening again, have been made to the Directorate. A review of the consultant's reports by the Review Team encourage it to urge that the Director implement the report as soon as practicable. If the team has reservations, it is in the somewhat overpowering complexity of the systems and procedures for conducting the performance appraisals and of

maintaining the job descriptions and grading system recommended by the consultants. The system recommended would fit without change, an organization many times IRRI's size and with far more resources to devote to it than does IRRI. But we believe that these can be modified with the help of the new personnel manager and should not in themselves delay the implementation of the new grading and salary system. Two problems in implementing the consultants recommendations need to be given serious considerations by the Director and the new personnel manager. First, is the method by which the new grading and salary system is to be installed. There will need to be much education of and communication with the staff so that the new program is completely and fully understood and department heads, managers and supervisors, will need to be fully informed on how the system is to work. There will undoubtedly be requests for exceptions to the plan and the Director will have to move decisively but fairly in maintaining the integrity of the system for no change of this magnitude will be without some difficulty.

Second, is the need to move quickly to establish a formal procedure to review the salary grades each year. A salary structure to be responsible to the needs of both employee and employer must recognize both the need to increase salary because of the impact of external events--basically cost of living or inflation--and the need to reward individuals because of meritorious performance. The Institute's salary structure must be kept competitive with the organizations with which it competes for staff and with conditions in the communities in which its employees live. Unless this is done on a regular schedule, IRRI will find that the new salary system becomes just as unhelpful as the one it now has.

The Review Team has considered in another section of this report the structure and organization of the Administrative Services units. One of its recommendations there is that the Personnel Manager report directly to the new Assistant Director for Administration and be of the same rank as the General Services Officer and the Controller. We believe this to be important both to signal to the staff the importance which the Director places on sound personnel practices and to give the personnel manager enough authority to bring about the necessary changes.

Because of the imminent arrival of the new Personnel Manager, it did not seem the best use of our limited time to dig too deeply into the current personnel system. The new manager should be encouraged to review all aspects of personnel activity at IRRI. In doing so, we would suggest that he be concerned not only with the clerical and record keeping function of personnel activity but that he give serious attentions to creating an atmosphere at IRRI which will allow all individuals regardless of level, salary, nationality, scientific or administrative endeavor,

whether field worker or office worker, to develop to the maximum of their ability and desires their capabilities to assist IRRI in reaching its goals. For example, the Institute should examine its policies of providing educational assistance to junior scientific staff as well as the rank and file worker. Opportunities for in services training and self-development should be expanded and employees actively encouraged to participate.

We would hope that the new personnel manager would work closely with Department heads and supervisors to make the statements found in Memorandum No. 139 on employment opportunity and promotion to be truly applicable to all staff without regard to the department in which the opening or position exists or to the department in which a qualified staff member may currently be assigned. Just as the opportunity for self-development should be made available to all staff, so to, must the opportunity to rise in the organization to the highest level of ones capabilities. Assignment, transfer and promotion in IRRI should be based first on the needs of IRRI and the qualifications of the individual and only secondarily, on the needs of any particular department or unit.

We believe that Memorandum No. 139 provides a good starting point for the new Personnel Manager to establish a manual of personnel policies and procedures that can be made available to all staff. The more clearly personnel policies and procedures are understood both by staff members and supervisors alike, the less chance there is for the kind of misunderstandings and unhappiness that sap morale, reduce efficiency and keep individuals from performing at their best and thus, cause the entire organization to operate at less than 100% of potential.

It should be pointed out that Memorandum No. 139 was issued in March of 1970. There have been new and improved approaches to the handling and funding of many of the employees benefits setforth in 139 that will require careful review by the personnel manager and the Director.

We understand and are in accord with the decision of the Director to limit the work of the Personnel Manager to the area of Los Baños support staff. We believe, however, that it is necessary that the responsibility for maintaining uniform personnel policies, procedures and practices for the Los Baños senior staff and for the senior staff assigned overseas be placed elsewhere in the Directorate than in the office of the Director. We suggest that the Assistant Director for Administration assume the responsibility. The Assistant Director for Administration should develop with the cooperation and assistance of the Associate Director for International Programs and a Director selected panel of senior staff, a comprehensive personnel manual which will be made available to all senior staff. We hasten to add that this should not

interfere with the ability of the Director or department heads to hire and assign senior staff based on their specialized knowledge of their department needs and the peculiarities of the fields in which they work. What we are suggesting should add to the Director's and department heads' ability to attract staff and to keeping them happily employed thereafter.

The growth of the international staff places new personnel burden on the Directorate. The overseas staff is now almost equal to the Los Baños staff. It is doubtful because of current funding methods that the Los Baños core program will be able to provide all the staff needed to man these overseas projects and thus, short-term staff will need to be hired. It is also doubtful that this many new staff can be offered the opportunity of joining the core staff upon the conclusion of their overseas assignment. Thus, it may be necessary to offer short-term overseas staff not assigned to the core program, additional inducement in the form of higher salaries, special overseas allowances, etc. in order to attract them to the posts that must be filled. Careful attention to the development of these policies must be given so that they can be easily identified and justified to staff and thus not become a focal point for unwarranted dissatisfaction. Because donor agencies and contractors are also interested in such differences it is advisable that terms of services for IRRI core employees and IRRI short-term (contract) employees be carefully spelled out.

Because of the size of IRRI's overseas program and its close relationship to the programs and staff at Los Baños, it is in the Review Team's opinion that it is not desirable for IRRI to continue its present practice of providing benefits to staff based on the regulations for personnel of the individual donor and contract agencies with which it deals. Once IRRI has established clear cut policies on how it will pay and provide for its staff both in Los Baños and overseas, it should insist that its staff be compensated and provided for logistically according to these policies and not those of the contractor agency. We believe that a firm stand on this issue backed by sound and defensible personnel policies will not prove a hindrance to good relations with such agencies. As a further argument to such a position, one could point out that where contractors do not provide sufficiently within the contract for IRRI's regular personnel policies, that IRRI must provide for these from core budget and thus reduce its commitment in these areas. We do not believe that core funds should be used to support a contract.

The problem of the large number of second level scientific and research staff, i.e., assistant scientists, sr. research assistant, research assistant and research aide; who appear to have little possibility of upward mobility and who had been with the Institute for sometime came to the fore as a serious and immediate problem. Coupled with this was the off repeated statements that current salary,

educational allowances and other perquisites were not sufficient to hold the best of the junior scientific staff or to attract new staff of high quality. One solution that was often advanced was to create a new grade at a higher level, thus opening the way for some promotion from all four lower levels to those who are discouraged from a lack of mobility and providing more attractive jobs and salaries to attract the needed new staff. While certainly this may be a useful move in itself it does little to solving the underlying problem of low pay and lack of opportunity, and will only hide the basic problem during the time necessary for the 5 grade pipeline to become clogged. Rather we would first suggest a careful review of the salary and perquisites offered by competing organizations to be sure where the Institute is really deficient and the removal of these deficiencies to where the Institute again stands competitively at or near the top. Second, we would suggest a careful review of the current junior staff to be sure that those who are now on board have the ability to stay and meet IRRI's quality standards. Those who are judged not to be of this calibre should be encouraged to find employment elsewhere and the Institute would do everything in its power to help such individual relocate. And last, so that the problem will not be as difficult to face in the future, we would suggest that all junior scientists be hired on one or two years contracts so that there must be the formal need to subject each individual to an annual or bi-annual review with continuance of employment based on the ability to pass a rigorous review of his/her peers.

We believe that the accomplishment of these steps should do much to alleviate the current unrest among the junior scientific staff and should provide the needed spur to recruitment. However, we believe that the upward mobility of the junior staff must continue to be a prime concern to the Directorate and to the Senior scientific staff. Individuals who are not maintaining their scientific standing should be encouraged to enroll at the University with substantial Institute help. Individuals who are not presumed to have a future with the Institute should be told so as soon as possible and even at the risk of some loss of efficiency (in the departments research) by his/her departure. The new fifth grade should be established to provide additional upward mobility and to bring gifted individuals into a role where they can make even greater contribution to IRRI's work. Entrance into the new fifth grade should be carefully administered and the work assigned to individuals who are so promoted should be commensurate with this higher level of competence.

CONTROLLER

The Review Team recommends that operating responsibility for IRRIs financial planning, budgeting, accounting, financial reporting and cash management be assigned to the office of the controller and that the controller report directly to the Assistant Director for Administration. With respect to these financial functions, we believe the Assistant Director for Administration should be responsible for:

1) formulating broad financial and contracting policy; 2) establishing a formal planning system which integrates programming, budgeting, and financial planning; and 3) for insuring that the Institute's finances are prudently managed. These functions and those of the Controller are discussed more fully below.

Formulating Broad Financial and Contracting Policy:

The Review Team believes that IRRIs financial policies (like those of many organizations, and most of the other international agricultural research institutions) have evolved overtime on the basis of ad hoc internal decisions, requirements stipulated in special contracts and requirements imposed by donors. Given the history and nature of the institution, we do not find this unnatural, but we do believe that IRRIs would benefit from rationalizing existing financial policies, and establishing policies where they do not currently exist. More specifically, we feel a financial policy paper should be prepared from time to time for the Board of Trustees dealing with the following:

- a) Cash Management and Liquidity (including the investment of funds and the use of interest revenue)
- b) Advances and Receivables
- c) Borrowings
- d) Grant Accounting (Unrestricted and Restricted)
- e) Special Project Contracts
- f) Self-Sustaining Operations
- g) Earned Income
- h) Capital and Unexpended Balances

Establishing a Formal Planning System Which Integrates
Programming, Budgeting and Financial Planning

The Review Team believes that the center's present system of planning (an annual "Informal" Program Review with heads of each department) does not provide an adequate mechanism for stating and setting the medium term goals of the institution, moreover, it does not properly link programs with budgetary implications, nor does it provide the basis for setting out well-planned and thoughtful expressions of future financial requirements.

For these reasons, the Team recommends that a more formal and complete system of planning be established. We have in mind a procedure where, based on guidelines established at IRRI for program development, each research department, the Associate Director for International Programs, the Assistant Director for Education and Communication, and the Assistant Director for Administration would prepare annually a five-year program paper. As we see it, this paper would be the principal instrument for defining the center's medium term operating goals and support levels and would be the basis for stating manpower and other resource requirements. More specifically, this paper would serve to:

- a) Provide those responsible for implementing IRRI's programs with an annual opportunity to propose specific courses of action, to state research and other goals and to indicate manpower requirements;
- b) Provide IRRI's management with a sound basis for relating the work and direction of each department to the primary purposes of IRRI;
- c) Provide a formal statement of the program goals, the rationale for these goals, and a record of decisions taken; and
- d) Provide the basis for annual and medium term work programs, budgets and financial plans.

We would think that this program paper would consist of a text (approximately 10 to 15 pages) together with supporting tables. The text should relate on-going work to existing goals, assess accomplishments to-date against original expectations and discuss problems. Based on this assessment and in the light of new IRRI initiatives, the paper should propose goals and set strategies for the planning period. These goals should be specific as to problems being addressed, the plan of work, and a statement on how the work relates to the broader food and human problems central to IRRI's mission. The supporting tables

should quantify to the extent practicable the work volumes involved as well as the manpower (by type) to carry out the proposed programs.

Insuring the Institute's Finances are Prudently Managed:

The Review Team believes that the Assistant Director for Administration should be responsible for insuring that funds made available to IRRI are being used for the purposes intended and with reasonable efficiency. He should prepare the terms of reference for the external auditors and from time to time seek consulting or other forms of expert advice on particular financial or contracting problems. In addition he should deal with external financial reviewers.

The controller should be responsible for: 1) implementing financial policy; 2) managing the Institute's liquidity; 3) establishing a sound system of internal control; 4) maintaining the financial plans and budgets; 5) maintaining the Institute's accounts (including inventory records); and 6) provide timely and accurate financial information to the Director, the Board of Trustees, and IRRI's management.

We recommend that the controller consider organizing his department along five functional lines: Budgeting; Contract and Cost Accounting; General and Grant Accounting; Inventory Accounting; and Cashiering. Only two of these functions (Budgeting, Contracting, and Cost Accounting and Cashier) are sufficiently different from what is now being done to require comment.

The recommendation to establish a cashier is to separate the recording of (the control over) cash from the actual custody of the asset and to improve the timing and flow of information on cash management.

The recommendation to establish a unit responsible for budgeting, contracting and cost accounting is based on the Team's:

- a) Recommendation that a more formal and extensive planning system be established, including the maintenance of medium term financial plans;
- b) Belief that as IRRI moves towards a multi-program approach in rice research (GEU, multi-cropping, and individual department research) while retaining its existing departmental structure, the complexity of the budgeting and accounting process will increase;
- c) Belief that CG requirements for budget presentation and financial reporting requires additional refinements in IRRI's budgeting procedures;

- d) Belief that IRRI should develop pricing policies and refined costing procedures for special projects so that it can carefully work out the financial implications of proposed contracts;
- e) Belief that those responsible for budgets (both department heads and program heads) should receive periodic statements showing the status of their full budgets, whereas currently budget reports are provided on a few line items considered "controllable";
- f) Belief that a budget manual should be prepared explaining the purpose, procedures, timing, reporting and control system of the budget. The manual should also set out the rules governing budget management (i.e., what discretion does the manager of a particular budget unit have and what resource does he have to contingency funds).

It was not possible in the time available to study the current work load on the financial staff. However, assuming that the current level of staffing is about right; this recommendation implies that at least one additional position be established if the controller is to carry out the team's recommendation.

INTERNAL AUDITING

The Team was asked for its views on the need to establish the position of an "internal auditor", a recommendation made by the external auditors and endorsed by the consulting firm which recently studied IRRI's administration organization and procedures. Based on discussions with staff and after reviewing the audit reports of the external auditors, the Team could not find sufficient evidence to support this recommendation. There was full agreement among the Team that in the absence of a documented need, IRRI's current size and its volume of accounting transactions did not warrant employing a full-time internal auditor. The Team thought that a number of other measures (i.e., expanding the terms of reference of the external auditors, organizational improvements in the financial section, and the use of outside consultants to do procedural studies in problem areas) could and should be used as an alternative.

GENERAL SERVICES

The Review Team has previously recommended that the positions of Executive Officer and Associate Executive Officer be abolished. Instead we have recommended that the position of Assistant Director for Administration be established in the Directorate and that this official have reporting to him/her the Controller, the Personnel Manager, and the General Services Manager.

The Review Team suggests the following reignment and arrangement of the various offices and services formally under the jurisdiction of the Executive Officer:

Transport Services which will assume the responsibility for all motor vehicle assignment and use as well as the responsibility of supervising and operating the Motor Vehicle Repair Shop. (In passing we should indicate that we were attracted to the idea of also adding to this unit the responsibility for the farm implement repair operations but as we did not have time to study this in depth we can only highlight it for further consideration by the Director).

Purchasing and Supply would be transferred to this new organization almost as it is now constituted. We believe that the staff of this unit is probably over extended which makes for the kind of dissatisfactions one hears from department heads. As these complaints deal mostly with slowness, lateness or lack of advice on progress, we believe that these stem from lack of staff rather than from lack of effort. The demands of the international programs alone would appear to justify the addition of a competent buyer/expediter. In addition this unit like others in administrative services has grown like topsey and has tended to maintain practices and procedures established years ago when demands were lower and purchasing requirements less complicated. We believe that the new General Services Manager and the new Assistant Director for Administration will need to spend a fair portion of their time on reviewing the systems and procedures used in purchasing as well as in the other units that make up their division. While not purchasing experts we believe that much can be done to increase efficiency and to improve service by such reviews.

Office services would be responsible for Travel, Mail and Messenger, Security and Janitorial Services. We have put these together because we believe that in general they serve the same users and work the same general physical areas. We also believe that purchasing has enough to do without being involved with the day to day problem of Security. It is also an attempt on our part to reduce the load now carried by the Buildings and Grounds office which is probably the most under supervised unit in Administration.

Building Maintenance and Construction would assume responsibility for much of what used to be Buildings and Grounds. We are not particularly attracted to the new name we have suggested for this unit but believe that there should be a new one to signify that it is new and not just a replated version of the old.

We have attempted to limit this new unit's responsibilities to those activities that have a direct relationship to the maintenance of the physical plant of IRRI, and not to equipment or activities that require a shifting of procedures and practices to handle them. Thus, we have assembled here, Painting, Carpentry, Plumbing, Electrical and Refrigeration---all of the normal building trades. We have also continued ground maintenance here because we believe that it is most like the others and also because it requires some coordination between building maintenance and grounds maintenance.

With the volume of construction activity and renovation work handled by this unit and because of the load that it assumes in negotiating with outside contractors as well as evaluating their work, we believe that the Director should look into the need to provide an additional staff member in the office of the Manager of this unit to serve both as a draftsman, specifications writer and expeditor. We believe that the work would flow more orderly and that supplies would be used more efficiently if such a semi-professional, skilled in the building trades were added. We do not see this position being filled by another clerk or a tradesman. The individual should have the potential, if even some years down the road to replace the current manager of this unit.

It should be noted here that Self-Sustaining Activities, Equipment and Instrument Maintenance have been transferred to offices outside of Administration as set forth in previous statements.

POLICY ISSUES

During the course of our discussions with the director and his staff, a number of policy related matters were touched upon which we believe merit further consideration or study. We note these issues below without making recommendation.

Special Projects Contracting

We believe that IRRI has tended to take a reactive rather than a controlling position with respect to special project contracts. Moreover, we believe that it is incorrect in principle and unfortunate in practice if special project contracts are permitted to dictate IRRI's personnel and accounting policies. We are fully aware that this is a complex area replete with problems, but feel strongly that the subject deserves further study.

Balance Between Research and Technology Transfer

Both the Consultative Group on International Agricultural Research and the Director of IRRI have stated that the success of the international agricultural research centers will ultimately be judged on what is accomplished in the farmers' fields rather than what is accomplished in the laboratories. We are not equipped to judge the extent to which balance exists at IRRI between the objective of improving rice varieties and yields and the transferring of existing technologies. However, in view of the increasing importance of technology transfer, we believe that further thought and a fuller rationalization of this balance is in order.

Centralized Support Services

In two areas (field services and laboratory services) the panel wondered if IRRI's work might be more efficiently handled, with equal effectiveness if not convenience, by centralized services. It seemed that on the face of it, the scientific staff could be relieved of some personnel management problems and other administrative burdens if agricultural laborers were transferred from the departments to the experimental farm. We also wonder if by consolidating laboratory equipment and staff it would improve the quality of testing and result in economies of scale.

Combining Selected Departments

The panel noted that a number of scientific departments are relatively small, particularly if one excluded clerical and field labor. We suspect that the organization and administration of the Institute

could be streamlined by making logical consolidations of some small departments or in providing consolidated administrative services where research consolidations are not feasible.

Real and Imaginary Controls

As we reviewed various control procedures over administrative services and accounting functions, we noted that very often the central control mechanism was that the department head approved authorizing documents. That is, he signed work orders for buildings and grounds services, approved overtime slips, authorized purchase orders, signed for store requisitions, etc. Given the nature of these transactions and the interest of the department head, we wonder how effective these controls are in practice and if they are effective, perhaps, they are taking too much senior scientific staff time. We are of the opinion that an assessment should be made to determine the extent to which these controls are effective and at the same time methods might be found that would be less demanding on senior scientific staff.

VISITORS

We noted that staff are ambivalent about visitors. They recognize the need to receive visitors and acknowledge that scientific exchange with visitors is valuable to their own research progress. They do, however, resent the time it takes, especially when its value appears only to be for public relations. We believe the Director needs to look into the visitor problem and take what ever steps he can to shield the research staff from unnecessary involvement in the large volume of visitors that are attracted to IRRI and which, on balance, the Review Team does not believe should be turned away.

SUMMARY AND CONCLUSIONS

The Review Team considered its central task to be one of a) assessing the extent to which IRRI's current management and administrative structure can meet and be responsive to the challenges of new leadership, new programs and a more complex international support environment; and b) to bring forward specific recommendations where it felt improvements should be made.

Based on its review of briefing materials provided by the Institute, and by external consultants, and on its detailed discussions with members of the directorate, department heads and support service personnel, the Team concluded that:

- a) The informal management style that has characterized IRRI's organization up to now was well suited to its formative period, but unlikely to be responsive to the demands of the Institute's own new activities and the changing environment in which international agricultural research centers must now function;
- b) That a more formal organizational style is now appropriate, both because of the demands of the future and the personal management style of the current director;
- c) The director should concentrate his energies and time on the priority programs of the Institute (which we consider to be program direction, interaction with scientific staff, external relations and dealing with consultative group matters) and formally delegate the responsibility and authority for other activities and functions;
- d) The director should, while delegating responsibility and structuring the organization, retain to the extent possible the participation and management process by opening more channels of communication, perhaps through regularized staff meetings;
- e) The director should undertake to strengthen the process of goal determination and planning to insure that the working and direction of each department is fully in line with the primary purposes of IRRI.

In view of the conclusion reached, and after taking into account the traditions and human resources available to IRRI, the Review Team recommends the following specific actions:

A. Organization

- 1) Reaffirm the director's line responsibility for the research programs;
- 2) Establish clear line authority for international programs under the Associate Director;
- 3) Place line management responsibility for the Experimental Farm, the Statistics Department and - if established - the support laboratories, under the Assistant Director for Research Coordination.
- 4) Place line management responsibility for the Library, Rice Production Training and Research Department, Information Services, and Self-Sustaining Activities under the Assistant Director for Education (with an appropriate revision in title).
- 5) Upgrade the executive officer's position (now not considered a senior management post) to Assistant Director for Administration and assign to the office responsibility for personnel management, administrative services and finance.
- 6) Establish an administrative services area headed by a "General Services Manager" who would be responsible for transportation, purchasing, office services, building maintenance and construction.
- 7) Place the primary responsibility for financial management on the Assistant Director for Administration and the controller, and suggest that this office be strengthened by the addition of a budget contract and cost accounting unit.

B. Personnel

The panel considered the area of personnel administration to be one of IRRI's most immediate problem areas and complement the management decision to first hire a Philippine consulting firm to review the personnel area and secondly to hire a competent personnel manager who will report for duty within two weeks. In view of the actions already taken, our recommendations are:

- 1) That the new personnel manager be brought in at a level equal to the controller and general services manager;

- 2) Implement the report of the consultants but modify and simplify the system of personnel evaluation and grading proposed by the consultants;
- 3) Develop a personnel manual to formulate and educate line managers and staff on IRRI's personnel policies and practices;
- 4) Develop salary administration policies that take into account price changes, market changes, and which reward productivity;
- 5) Give attention to creating an atmosphere at IRRI that will allow all staff to develop fully their potential and grow professionally during their period of employment;
- 6) Assist the Assistant Director for Administration in assessing the personnel policies and practices applicable to the international and senior staff, and prepare a manual for use in dealing with staff and contractors;
- 7) Establish, if necessary, a new grade level for junior scientific staff, but only after the existing grade and salary structure has been rationalized. The panel believes that if a new grade level were established at this time, it would be used to correct deficiencies in salary administration rather than provide for career growth.

C. Planning

The panel concluded that IRRI's present system of planning (annual informal reviews) does not provide an adequate mechanism for stating and setting internal goals for the institution. We therefore recommend that:

- 1) A more formal and complete system of planning be established by requiring research department heads, the Associate Director for International Programs, the Assistant Director for Research, the Assistant Director for Education and Communication, and the Assistant Director for Administration to prepare an annual five-year planning paper. In our opinion, this paper should be the principal instrument for defining the center's medium term operating goals and support levels and serve as the basis for annual and medium term work programs, budgets and financial plans;

- 2) Place responsibility for developing and administering the planning system under the Assistant Director for Administration.

D. Internal Auditor

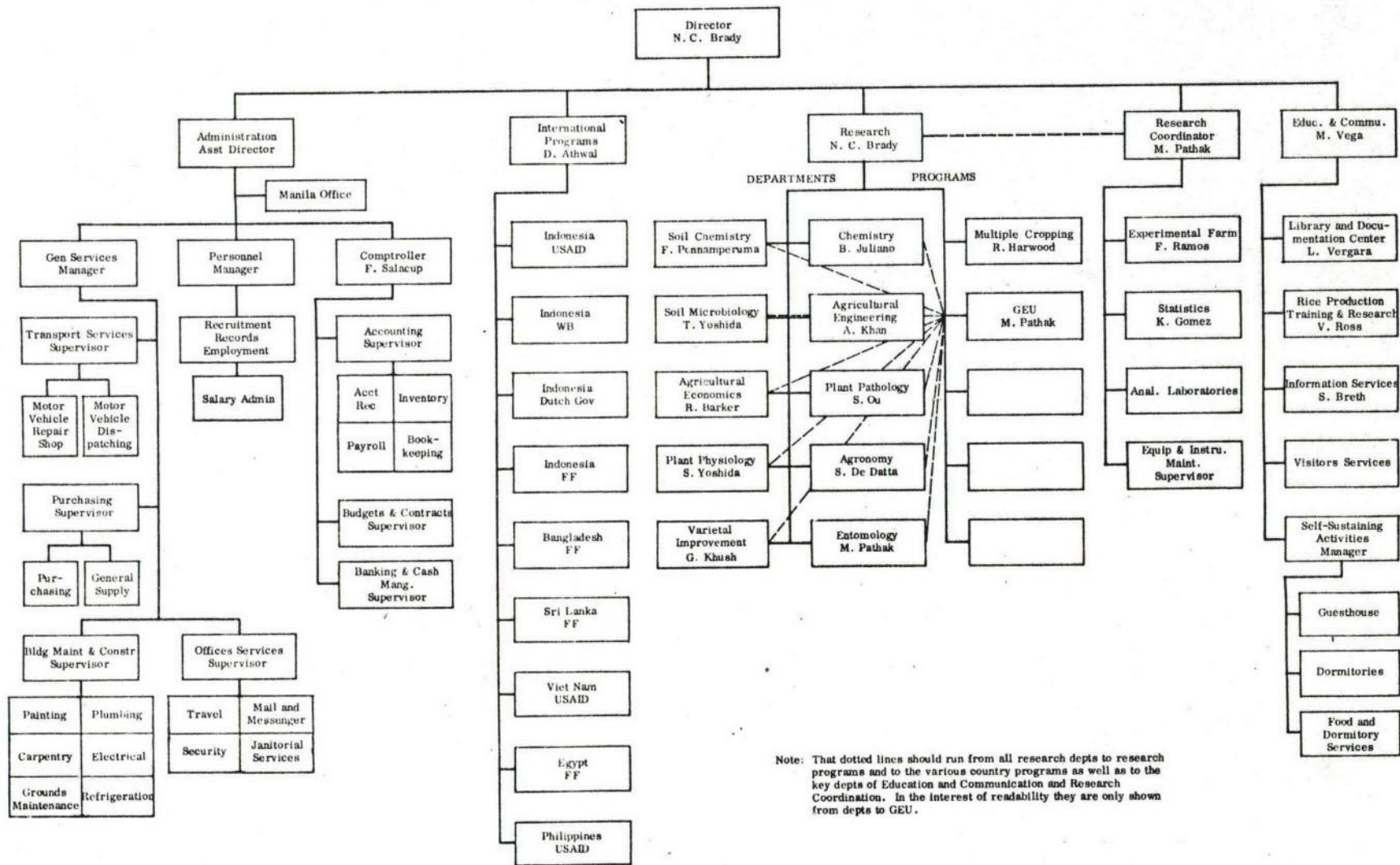
After studying the recommendations for the external auditors of the Philippine consulting firm, we recommend against establishing the position of internal auditor on the grounds that:

- 1) Other methods of improving internal control are available and should be used;
- 2) There is insufficient evidence to support the recommendation; and
- 3) IRRI's current volume of transactions is not sufficiently large to justify a full-time internal auditor.

W.P. Gormbley
M.E. Ruddy
A.G. Samonte

January 11, 1974
Los Baños
The Philippines

PROPOSED IRRI ORGANIZATIONAL STRUCTURE



Note: That dotted lines should run from all research depts to research programs and to the various country programs as well as to the key depts of Education and Communication and Research Coordination. In the interest of readability they are only shown from depts to GEU.

G1 BACKGROUND
TN

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

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Telephone (Area Code 202) 477-3592
Cable Address - INTBAFRAD

June 14, 1974

TO: Members of the Consultative Group and of the
Technical Advisory Committee

FROM: Executive Secretariat

SUBJECT: Selected Notes on Center Directors' Meeting, February 1974

Attached is a copy of the Selected Notes of the Meeting of the Directors of the International Agricultural Research Centers which was held at CIAT, Colombia, from March 4 to March 7, 1974.

The Notes summarize a number of administrative and scientific questions with which the Directors are concerned and often give their views and intended lines of action, partly in preparation for their July 26-27 meeting. Many of the subjects will come up in the Centers Week program as well, such as overhead charges, outreach programs, linkages with regional research, flow of funds from donors, review procedures and accounting systems, training programs, the fertilizer situation, small farmer problems, protein-related research.

Attachment
BMC:mcj

SELECTED NOTES
MEETING OF DIRECTORS
INTERNATIONAL AGRICULTURAL RESEARCH CENTERS

MARCH 4-7, 1974

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL
CALI, COLOMBIA

FINAL DRAFT
May 26, 1974

SELECTED NOTES

Meeting of Directors

International Agricultural Research Centers

March 4-7, 1974

Centro Internacional de Agricultura Tropical
Cali, Colombia

Participating Centers:

AVRDC	Asian Vegetable Research and Development Center
CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
ICRISAT	International Center for Research in the Semi-Arid Tropics
ILCA	International Livestock Center for Africa
IRRI	International Rice Research Institute
IITA	International Institute for Tropical Agriculture

FOREWORD

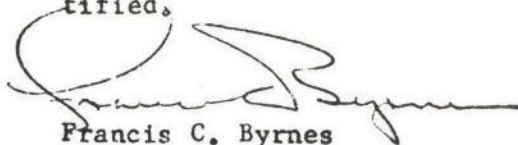
Directors of the various international agricultural research and training centers convened at the headquarters of the Centro Internacional de Agricultura Tropical, Cali, Colombia, March 4-7, 1974. This was the fourth regular semi-annual meeting of the Directors, the first such meeting being during Centers' Week, 1972, the second at Villa Serbelloni, Bellagio, Italy, in February, 1973, and the third at Washington, D. C., during Centers' Week, 1973.

Eight of the nine existing international Centers were represented at this meeting, the Director of ILRAD being unable to attend because of illness. Many of the Centers were represented by both the Director and the Deputy or Associate.

At various times during the meeting at CIAT, resource persons, as identified, participated in the discussions.

These notes do not represent detailed minutes of the Directors' deliberations but rather, as Selected Notes, attempt to record for the future information of the Directors, their staffs, and the Consultative Group the important issues identified and discussed.

Detailed information about many of the subjects discussed may be obtained by writing directly to the Director of the Center identified.



Francis C. Byrnes
Secretary

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Appendix

Notes on World Fertilizer Situation and Its Impact Upon the
Work of the International Centers.

MEETING PARTICIPANTS

Asian Vegetable Research and Development Center - AVRDC
Robert F. Chandler, Jr. Director
C. L. Luh, Associate Director

Centro Internacional de Agricultura Tropical - CIAT
U. J. Grant, Director General
Eduardo Alvarez-Luna, Deputy Director General
Francis C. Byrnes, Leader, Training and Communication

Centro Internacional de Mejoramiento de Maiz y Trigo - CIMMYT
Haldore Hanson, Director General

Centro Internacional de la Papa
Richard Sawyer, Director
Orville Page, Acting Deputy Director

International Center for Research in the Semi-Arid Tropics - ICRISAT
J. S. Kanwar, Associate Director

International Livestock Center for Africa - ILCA
Jean Pagot, Director

International Rice Research Institute - IRRI
Nyle Brady, Director
D. S. Athwal, Associate Director

International Institute for Tropical Agriculture - IITA
Herbert Albrecht, Director General
John Nickel, Deputy Director General

Program and Resource People

International Institute for Education - IIE
Richard Myer
Cyriac Thannikary

International Bank for Reconstruction and Development - IBRD
Montague Yudelman

Tennessee Valley Association - TVA
Donald McCune

P. S. Ross and Partners
A. P. Bogie
Robert L. Cummings, Jr.

Centro Internacional de Agricultura Tropical - CIAT
Charles Francis
Alberto Pradilla
Fernando Monge
P. R. Jennings

Rockefeller Foundation
Dorothy Parker (retired)

Centro Internacional de Mejoramiento de Maiz y Trigo - CIMMYT
Ernest Sprague
Glenn Anderson

World Food Institute
Charlotte Roderick
Joe Bohlen
William W. Marion
Clarence W. Bockhop

A. Discussions with IIE Representatives
(Richard Myer and Cyriac Thannikary)

1. Offshore Retirement

- a. Contract signed with AIRCO became effective January 1, 1974.
- b. Funds presently held by TIAA-CREF will be transferred as soon as stock market is more favorable, and in any case, by June.
- c. Staff soon will receive amendment on employment contracts; IIE requests prompt cooperation on part of all employees as all must get into the plan at the outset. Each participant will receive an explanatory book, and later a receipt from AIRCO on receipt of the first quarterly payment. In future operation, they will receive an annual statement.
- d. Until transferred to AIRCO, funds in TIAA-CREF continue to draw interest.
- e. IIE will investigate situations where staff members may be disadvantaged by plan and determine if there are ways of handling individual cases.
- f. General sentiment of the Directors was that there is no predicting how individual country tax laws may change over time and the centers must, for the good of all, have a satisfactory plan.
- g. Documents attesting to financial stability of AIRCO (a subsidiary of AIG) were circulated for inspection.
- h. IIE estimates that it has incurred \$8,000 in additional costs in setting up the program and, per memo to Directors, February 20, proposes that this amount be deducted from insurance premium rebates. The Directors agreed.

2. Release of Reserve Funds

- a. IIE has informed centers that operating accounts are being credited to the extent of returnable reserve funds.
- b. All staff members have agreed to revision of their contracts, and the IIE-Center contracts are being revised.
- c. The new contract amendment will outline procedure for paying quarterly bills, i.e. each center will remit checks during the first 15 days of each quarter in amount of the previous quarter's operating cost.

3. Revision in Insurance Coverage
 - a. IIE reported that a new provision in staff health/medical insurance coverage puts the \$50 per family/year deductible clause on an accumulated basis. In other words, the \$50 is only deducted once during the year.
4. Increase in IIE Administrative Fees
 - a. Given the increases in costs of living, etc, IIE has incurred losses in center operating accounts over the past 18 months, per February 19 memo to Directors. Consequently, IIE proposed a new rate schedule for handling staff members, as follows:

New Staff	-	Increase from \$525 to \$600
Old Staff	-	Increase from \$325 to \$400
 - b. The Directors approved the new rate, but IIE is to determine whether it could establish a special rate for the processing of a short-term individual.
 - c. The concensus was that, in general, it was in the best interests of the Centers to use the services of IIE, wherever possible.
 - d. Where possible, IIE was requested to leave tickets "open" when situating transportation for the travel of new staff members and their families.
5. IIE Services on Publications
 - a. IIE expressed a willingness to undertake on behalf of the centers a range of services relating to publications, i.e. (1) Circulation and distribution; (2) reproduction; (3) indexing; (4) abstracting; (5) abstract journal, etc.
 - b. Given the range of subject matter, range of audiences, problem of technical accuracy, difference in language requirements, and existing publication arrangements, the Directors questioned whether an appropriate service was possible or needed.
 - c. As some expressed interest in a quarterly abstract journal, the Directors agreed to review these matters with their staffs and to discuss the possibilities at a later meeting.
6. Public Relations for Centers
 - a. IIE introduced the question as to whether the Directors might be interested in having IIE organize a series of seminars in the United States to acquaint designated audiences with the work of the Centers.

- b. Directors expressed the idea that the real need was to concentrate on doing work to carry out assigned missions in the developing world and to keep donors, present and prospective, informed.
- c. Some Directors expressed a feeling that a public relations program, as proposed, might "backfire."

7. Purchasing Services

- a. Faced with the likelihood that both Ford and Rockefeller foundations contemplated terminating purchasing services presently being performed for some Centers, the Directors discussed possible alternatives and requested IIE to study the matter and, if interested, to propose a solution.
- b. IIE indicated an interest in purchasing for the Centers with one possibility being the absorbing of the unit presently operating in the Ford Foundation.
- c. All of the Center Directors present indicated an interest in having a purchasing service to handle all or some of the purchases in the United States and Europe.
- d. Finally, IIE was requested to submit a preliminary proposal by April 1, this to be based on a basic percentage figure for doing the work. The Directors expressed a preference for a standard procedure with known costs and minimum charges.

B. Brochure on CG and Centers
(Report by John LaHoud, Ford Foundation)

- 1. Editorial work is moving ahead. The brochure will have two major sections: (a) Opening section, with essay signed by World Bank, FAO, and UNDP on the need for an international network of agricultural research and training centers and how it has come about; (b) Section on each Center, with emphasis upon network aspects and relationships with national programs. Some questions are yet to be resolved with respect to level of language, how some of the recently established Centers are to be treated, and the types of photos to be used.
- 2. The present schedule is to furnish drafts to the Directors by mid-April with the final manuscript to be ready for review at International Centers' Week in late July.
- 3. Distribution plans are being developed by the UNDP, while each Center will be able to purchase quantities for its own use and distribution. Production costs will be met through the CG and the sales to the centers.

4. Irene Uribe has been contracted to write the section on the Centers. (Subsequently, she arrived and was able to interview each Director about what he believed important to include in the brochure).

C. Overhead Charges

1. Discussion centered on the need for uniform formulas for distributing administrative overhead charges related to restricted core and special project grants. With respect to restricted core, the concensus was that a donor who chooses to buy a specific part of a research program should pay an appropriate part of the administrative costs.
2. As CIMMYT has had more experience with the different kind of grants involved, Hanson was requested to circulate a document to the other centers so that each center may determine how well the formulas and procedures would work in the specific case. (At this meeting, Hanson distributed two papers prepared in 1973 for the Executive and Finance Committee of the CIMMYT Board. These outline and discuss the procedures being followed at that time by CIMMYT.)
3. Issues specifically identified included: Agreement on definitions and procedures; whether to distribute cost of research support services (experimental farm, central laboratory services, publications, etc.); how to classify training grants, and an arbitrary way to determine rate on grants that have no personnel costs.
4. Directors expected to be able to reconcile their ideas and reach final agreement by the next meeting.

D. Next Meeting of Center Directors

1. Because of the problems of meeting between sessions during Centers' Week, the Directors decided to hold a two-day meeting at Washington, D. C., immediately ahead of Centers' Week, Friday and Saturday, July 26 and 27.
2. Byrnes was requested to prepare a preliminary agenda for this meeting, with one day to be on administrative issues and the other on training.
3. Later in the week, the Directors outlined briefly some of the training issues which concern them, as follows: (a) What the results of followup studies of training programs indicate; (b) to what extent are centers presently using the "apprentice" system for training research people (as followed by IRRI), and with what effect; (c) how practical or successful are "train the trainer" type programs in terms of effects within national programs; (d) to what extent can centers help national training efforts by supplying instructors or other resources; (e) what are the most effective ways by which centers can or should participate in the training of doctoral candidates; (f) should centers

be encouraging the training of more doctoral students for the developing countries; (g) where and how can centers be most effective in training production specialists; (h) how can centers be more effective in followup on former trainers; (i) how much of the core budget should be allocated to support of trainees.

4. The Directors questioned whether it would be necessary to bring their training people to this meeting and will reserve final judgment after there is opportunity to review the proposed agenda for the meeting.
5. Byrnes will prepare, in addition, a summary on the forthcoming Rockefeller Foundation conference on agricultural education and training at Bellagio, March 11-15.

E. Outreach Grants

1. Nickel presented a draft of a working document within IITA which outlines the nature and concept of outreach programs, establishes criteria for IITA acceptance of such activities, outlines the standard professional personnel policies for such, and lists the ways in which the specific host government will participate in the carrying out of the agreed upon activities.
2. Discussion emphasized the importance of the various Centers keeping each other informed on what they are doing and planning to undertake in outreach, as well as the desirability of having some uniformity with respect to basic administrative issues.
3. Among the issues they identified (a) Relationships between outreach and home staff perquisites, and (b) how to provide professional development opportunities for long-term employees.
4. A committee consisting of Hanson, Athwal, and Nickel was selected, this committee to bring a basic document before the Directors at the meeting July 26.

F. Coordination Among Centers on Administration of Senior Staff

1. The procedural and policy issues discussed here included (a) when one center wishes to offer a position to a staff member of another center; (b) when one center requests a staff member of another center to participate in a specific activity (i.e., conference, field trip, program evaluation, etc.); (c) when one center invites a staff member of another center to attend a conference or similar activity.

2. Recognizing the difficulty of establishing and administering hard and fast rules, the Directors agreed on the following principles:
 - (a) On employment offers: These to be handled first at the administrative level.
 - (b) On requests for participation: While these might best be handled first at the administrative level, at least the Directors of the Centers involved should receive copies of any such requests or invitations. (As discussed at Bellagio, the requesting Center would be expected to provide the transportation and per diem unless the directors mutually agree that the staff member's participation is directly related to his program.)
 - (c) On invitations to participate: These normally would be handled as above, with the staff member's own Center bearing the transportation and per diem costs.

G. Scheduling and Receipt of Funds

1. Several Centers reported problems associated with delays in receiving from donors pledged amounts early enough in the year to provide a regular cash flow, and other delays, at the end of the year, in which final payments are received too late to apply against expenditures in the year intended.
2. Some Centers have experienced problems in using in the subsequent year such unexpended funds carried over.
3. Another problem mentioned was associated with the CG Secretariat's unintentional listing of certain restricted core funds as special project funds, and vice versa.
4. Further discussion led to the conclusion that the Directors should present to the CG a document outlining the problems of cash flow, late deposits, and related issues. This would be done with the expectation that the CG, if aware of the problems and needs, might take appropriate action. Albrecht was requested to draft such a document for later consideration by the Directors.
5. Subsequent discussion pointed up the possibility that much of the problem might be alleviated through the Consultative Group providing working capital to cover 40 working days operational expenses.

In the event that this does not resolve the problem for some Centers, it was agreed to review the matter at the July 26-27 meeting and, if necessary, present appropriate recommendations to the Secretariat of the Consultative Group.

Some of the aspects of this problem were addressed in the document, "Budgeting and Accounting Procedures and Practices of International Agricultural Research Centers," June 18, 1973, as follows:

"Actual cash transfers from donors frequently lag substantially behind commitments, and often do not take place until a center is well into its operating year. In order to deal with this problem, the directors recommend that the 1974 budget proposals include a one-time provision for working capital equal to 40 days' average cash requirements."

H. Letter from John Hannah

1. A letter addressed to the Center Directors from John Hannah, recently retired administrator of the U.S. Agency for International Development, was distributed. In this letter, Dr. Hannah explained his present mission to visit, as requested by the new administrator of AID, all of the present Centers to become acquainted with the purpose, activities and problems of these centers.
2. Attached to the letter was a series of questions which Dr. Hannah said indicated some of his preoccupations with the world food and population problems and the important role of the centers toward finding solutions to the food problems.
3. After considerable discussion, the Directors agreed that each Center would respond to the questions in light of its own objectives, programs and problems.

I. Income Tax for U. S. Citizens Employed by Centers

1. Nickel presented a working paper which outlined two aspects of the income tax issue as related to U.S. citizens employed by Centers. One of these was the possible loss of the present exemption which U.S. citizens residing and working abroad receive under current tax laws. The other relates to the erosion of the exemption by the defining as taxable income a number of perquisites and allowances which are not interpreted as reportable income for U.S. government employees living overseas who do not have the basic exemption.
2. If the Congress and the Internal Revenue Service should lower or eliminate the exemption, the costs of hiring U.S. citizens at international centers, already high, would increase considerably and gradually eliminate U.S. citizens from a competitive position in recruitment.
3. Inasmuch as the loss of the exemption does not appear to be an immediate threat, the concensus of the Directors was to let the matter alone for the time being but to keep abreast of developments through contacts already established with members of the Congressional staff.

J. Statistical and Computing Accounting Systems and Hardware

1. Two representatives of the firm, P. S. Ross and Partners, contracted by IDRC to assist Centers on matters relating to internal accounting and record systems and associated equipment, were present. They, Alisdair P. Bogie and Robert L. Cummings, Jr., explained how their work was being carried out in three phases: (a) Determining the requirements of the donor agencies for information from the Centers; (b) spending up to a week in each center looking into the specific operations on financial management, as well as other needs for calculator or computer assistance, and (c) writing recommendations.
2. With respect to financial accounting, they said their discussions at each Center would include: (a) requirements of the operating departments as well as accounting; (b) external reporting needs; (c) implications of the CG practices; (d) the budgeting process; (e) purchasing and payroll procedures; (f) implications of anticipated growth, and (g) opportunities for appropriate mechanization.
3. With respect to computers, their work concentrates on: (a) determining requirements for such services by accounting, statisticians, germplasm maintenance, and library-information systems; (b) talks with equipment suppliers in the area as well as with computer resources available, and (c) identification of skilled persons in the area available to supply services.
4. The consultants responded to a number of specific questions posed by the Directors, and much discussion centered on the problems of getting adequate local service and maintenance of equipment.
5. They said their report would be ready before Centers' Week. They indicated they would emphasize the "options open approach" for the various Centers. This would include consideration of some mechanization of accounting systems and some data processing needs. Taken together, these needs might presently be best met in some Centers by one of the new mini-computers, such as the Hewlett-Packard. The next step for some would be to lease time on larger equipment.
6. One Director suggested that their considerations include how supply inventories might also be mechanized.

K. Increasing Efficiency of Center Libraries

1. The Center Directors invited Dr. Dorothy Parker, former agricultural library specialist for the Rockefeller Foundation, and Dr. Fernando Monge, CIAT librarian, to discuss ways by which Center library operations might be made more effective and efficient.

2. Dr. Parker reviewed the situation briefly, as follows: (a) The volume of technical literature in agriculture is increasing rapidly; (b) libraries are faced with making this volume known and available and to do so currently and economically; (c) in many fields, libraries are working together to share the workload and costs through developing networks; (d) no one center is able to collect everything; (e) there is a need to acquire materials not easily found in the open market, frequently in mimeo or multilith form.
 3. With this background, she outlined some of the related issues: (a) Need for specialization in subject matter; (b) need that scientists and others have for access to specialized collections; (c) how to maintain a minimum collection and yet provide maximum service. These points, she said, suggests the need to bring librarians together to develop ways to cooperate and exchange material. Some libraries are making special bibliographies which are not being circulated. There is a need to share documentation techniques. With growing use of computers to take over repetitive tasks in libraries, compatible terminologies are needed.
 4. Monge described the AGRIS system being developed under FAO auspices and indicated that Center libraries are logical No. 2 type operations under that system.
 5. Following a general discussion, the Directors agreed that Drs. Parker and Monge should take the leadership in organizing a sharply-focused meeting of Center librarians, this meeting to be held at one of the Centers. As three Centers, IRRI, IITA and CIAT, had extended invitations, the Directors selected one on the basis of a drawing. CIAT was drawn and will be host to the meeting.
 6. Later in the week, the Directors approved the agenda and proposal for the meeting of librarians and asked Grant to write each Center Director with respect to the details of the meeting, August 5-9, 1974. Following this, Monge was to correspond directly with the librarians of each Center with respect to the materials they were to prepare and bring to the meeting.
 7. The purpose of the meeting, as outlined in the proposals, is to assist the librarians of the various Centers to achieve a mutual understanding of the objectives of Center libraries; to analyze their common problems and to seek possible solutions for these, and to adopt informal cooperative efforts which should assist each Center at little or no added cost.
- L. Linkages Between an International Center, National Programs, Regional Services, and Other Centers
1. CIMMYT had accepted the responsibility for this presentation and

discussion, with Ernest Sprague and Glenn Anderson joining Hanson in the presentation. Hanson traced the development of CIMMYT's outreach activities since 1966, beginning with programs in South Asia. Presently, CIMMYT's wheat and corn programs are dealing directly with 15 countries each, but the potential is 50 countries by the end of the decade.

2. Believing that CIMMYT can not cope with the demand from its central headquarters, Hanson suggested that one possible way is to re-examine regional networks and determine if mechanisms can be developed to meet some of the present and most of the projected future needs.
3. He outlined the regional services needed as being (a) germplasm distribution; (b) regional consultation from a resident scientist; (c) training, which requires a resident staff (most of this in country programs for production agronomists with occasional regional workshops); (d) regional travel grants for national scientists; (e) regional newsletter, and (f) fellowships for academic training.
4. Hanson mentioned there are a number of ways to provide and finance the needed services. He estimated a two-man staff in a region would cost \$150,000 a year without fellowships. This would not entail any research operation, but possibly some seed increase activities. He outlined a need for two men per area for six regions, per commodity (one a production consultant, the other an agronomist-trainer).
5. Among the problems and issues observed were these: (a) what kind of work do you give the regionally based scientist in order that he has a professional challenge; (b) with many common donors, how might centers work together in a country to achieve greater efficiency in use of funds; (c) how much research activity is required in a regional program; (d) should the training in the region be done in a regional center or within national programs; (e) can we expect money will be available indefinitely to finance programs in a country; (f) with increasing demands for personnel in outreach programs, how can this personnel be identified and developed.
6. Sprague described the principal objectives of a resident program at a center as being: (a) to help nationals generate the technology needed; (b) to train nationals; (c) to provide consulting. None of this can be effective, he said, without a thorough understanding of national problems. The key issues are (a) getting germplasm properly used in national programs. (Most do not know how to do this; most have been trained in hybrids and not in producing a variety for production. Breeders must be encouraged to get their material off the experiment station and into regional farm trials).

7. Sprague stressed the importance of training in order to develop people to cope with problems of the future. The training at CIMMYT is based on direct involvement with the crop for one full season. Trainees manage trials appropriate for an experiment station, and also design and carry out farm trials and demonstrations. They receive about the equivalent of one university quarter in the basic supporting disciplines, i.e., agronomy, entomology, pathology, etc. Other training approaches include visiting scientists from national programs who serve for one year on the CIMMYT staff, post doctoral appointees who have a specific area of program and some training responsibilities, and graduate students (both doctoral and masters candidates). The training of the latter is limited to their doing of thesis research at CIMMYT.
8. He suggested that a possible workable approach to a regional coordination program would be the basing of a two-man team in a country that already has a good program. They would need travel funds, not only for themselves but to sponsor travel of some of the nationals in the region.
9. Anderson commented on some of the other problems associated with stimulating production and productivity in national programs. There is a need, he said, to seek ways to make growing the product more economically attractive in some countries. He observed that training-of-trainers has not worked too well, and recommended that if regional training people are made available they should assist with in-country training programs. He also noted that increasing the number of thesis students at headquarters unduly burdens the scientific staff.
10. Among the questions which should be raised in considering programs in a country, Anderson listed: (a) is the government interested in promoting the crop; (b) is it willing to invest some of its own funds; (c) what is the staff situation and will it be best to train some people first or do you start by providing expatriate staff; (d) what are the government's priorities among crops.
11. The ensuing discussion raised the following points: (a) why are the Centers not more successful in getting their messages across to national leaders; (b) how to correct the misperception among some donor agencies that activities by Centers away from headquarters is keeping people away from doing needed research; (c) how to keep Centers from becoming involved in a country in straight technical assistance which may be peripheral to the major objectives; (d) how to develop ways to advise governments on food crop production rather than pushing a single crop; (e) how to develop knowledge of the varietal needs of farmers so that new materials will fit into their food production systems; (f) the need for standard operating procedures with respect to one Center sending selected materials to another Center which has an interest also in the specific crop.

M. World Fertilizer Situation

1. Upon invitation of the Center Directors, Dr. Donald McCune, director, National Fertilizer Development Center, presented a seminar on the world fertilizer situation and participated in several hours of discussion with the Directors on the implications of the presented and projected outlook.
2. Dr. McCune will circulate to the Directors in early April a detailed publication prepared for USAID by TVA: "World Fertilizer Market Review and Outlook," TA (QA) 6-69. Some notes on McCune's seminar and discussion, as prepared by Haldore Hanson, are attached to these minutes.

N. Experiences with Agricultural Development Projects

1. Upon invitation of the Center Directors, Dr. Montague Yudelman, director, Agriculture and Rural Development Department, International Bank for Reconstruction and Development, presented a seminar in which he reviewed the experiences of the World Bank and regional banks with agricultural development projects. Following the seminar, he and Dr. McCune joined the Directors in a comprehensive discussion of the agricultural development problems, particularly as they involve small farms and technology based on fertilizer use. Directors of several Centers outlined their activities and concerns in these areas.
2. Albrecht indicated that IITA's work in Africa is focused principally on small farms of the forested, lowland, humid tropics. IITA is not waiting for the development of a complete package of technology but is moving out new technology as it becomes available and is tested. He pointed out that one of the dangers of small farm research is that it may easily become too localized, sometimes neglecting problems of more widespread importance.
3. Nickel added that IITA is trying to develop scale neutral technology, with emphasis upon developing resistance to insects and diseases. He believes that such approaches can make for dramatic improvements as well as can varieties responsive to fertilizer. Through outreach programs, IITA expects to test the new technology on small farms in a variety of environments.
4. Yudelman stressed the great untapped potential in rural areas for increasing food production. Unless we raise the productivity of small farmers, he said, 800 million people who live on small farms will not get enough to eat.
5. Albrecht pointed out that the critical food shortages at the moment in Africa are mainly with the poor people in the cities.

6. After Brady had introduced the view that the small farmers in Asia are rice farmers, Hanson said that he believed too many people were looking at the wrong unit or variable in their concern for size. The critical difference, he said, is irrigated vs. non-irrigated land, and a move to be concerned about upland rice is a significant step.
7. Yudelman raised the disturbing question: What do you do when the resource base is so bad that you don't know what to do? Given that population will continue to grow in rural areas, he raised these issues: (a) Given the present scarcity of nitrogen, does this mean a difference in future research direction; (b) by putting emphasis on work for small farmers, does this complicate the food problem of the future; (c) what should our position be with respect to feeding grain to livestock in the United States; (d) while demand for meat increases as incomes go up, production of beef has not shown any appreciable increase in efficiency as has occurred in other animal products.
8. Commenting on these points, Pagot suggested that tropical feedlot research should aim at using by-products of the agricultural industries, and that there is a possibility of feeding grass in feedlots.

0. Relations with Consultative Group

1. In his role as a representative of the World Bank, Yudelman invited comments from the Directors with respect to relationships with the CG and its secretariat.
2. Directors agreed that the work of the secretariat had been 95 percent successful, although there had been some problems with respect to establishing relationships initially with new donors. The process of standardizing the budget process was an irritation, but no one was hurt in the process.
3. Some Directors felt the issue of program and Center reviews had not yet been completely resolved or clarified, although all expressed appreciation for the value of visits from the CG, donors, and the secretariat inasmuch as these afford opportunity to become acquainted with program and budget needs.
4. Pagot indicated that it had been the TAC policy to endorse a comprehensive evaluation for each commodity every 5 years. Brady indicated that communication among the relevant parties has been good, and he has suggested that a TAC representative participate in the annual program reviews at IRRI.

5. Yudelman asked for suggestions on how to make Centers' Week more productive. No concrete proposals were set forth other than some attention be given to reduce the number of events occurring simultaneously. Generally, Directors felt that Centers' Week provided an excellent opportunity for them to tell their story as well as to become better acquainted with present and future donors. To reduce the pressures on conflicts, as noted elsewhere, the Directors decided to hold a meeting of their own for two days preceding Centers' Week.
6. Thanking the Directors for the opportunity to discuss with them so many important issues, Yudelman said that while opportunities for expansion will be curtailed in the future the World Bank will not let the Centers down.

P. Inter-Center Responsibilities: RICE

1. This discussion explored the issues associated with inter-center relationships with respect to research and training activities at one center on a crop for which another center had primary responsibility. Brady and Albrecht agreed that the present formal agreement between IRRI and IITA with respect to IITA's involvement in lowland rice activities in Africa was working satisfactorily. Brady pointed out, however, that some African countries had raised questions as to why IRRI is not working on upland rice in Africa. Albrecht stressed the point that there must be liaison among centers even if a particular center is not directly involved in a specific crop so that coordination is not perceived as duplication.
2. Grant outlined that Latin America interests in rice were in three areas:
 - a. Lowland, where the cooperative work with IRRI has been significant and should be continued, although production is among a few relatively large farmers.
 - b. Upland, representing 70 percent of the Latin American rice production. CIAT has done little work on upland rice and has looked to IRRI for over all leadership in rice.
 - c. Adaptation of Asian rice production systems to poorly drained and flooded areas of Latin America. He believed CIAT's role in this should be limited to pilot and demonstrational involvement.
3. Brady outlined the expanding program in upland rice research at IRRI, but indicated that IRRI would not rate additional test locations as a high priority item, except where the production potential would justify.

4. Athwal said upland rice poses a difficult challenge. IRRI's upland program at Los Banos will have some relevance to Latin America and Africa. When IRRI has some results, the next step will be to determine the adaptability. He indicated that a regional program grafted onto the national program of Brazil would be useful, but that it would be difficult for IRRI to manage such an activity without the collaboration of CIAT.
5. Sawyer raised the question as to what principles are involved when a request arises for assistance on a crop, or a donor offers to finance work on a crop in a specific country. Brady replied as follows: (a) Neither center involved goes ahead without discussing the activity with the other; (b) the centers explore ways to work together, determine what is desirable, and clearly specify details; (c) if on upland rice, probably this could be best handled on a project basis out of IRRI. (Reference was made here to the IRRI document: IRRI's International Program---A Review and Future Outlook, included in appendix.)
6. Further discussion identified some of the differences in upland rice problems on the three continents, i.e., weed control is not a problem in Brazil, while this is the major problem in Africa. This underscored the point that a good upland rice technology in one area may not fit in another, thus the need for regional activities. Brady indicated that soil problems are maximized under upland conditions, but varieties screened for iron tolerance at IRRI would continue to be so elsewhere.
7. With respect to taking initiative and responsibility, two opinions arose--that the center with major responsibility for the crop take the initiative, the opposing viewpoint being the center most geographically close to the problem.

A principle emerged out of the discussion on which the Directors agreed: Centers must establish their own credibility in various parts of the world and particularly on the continent where they are located. Centers need to help governments develop perspectives on how to deal with and through centers. Building and maintaining regional credibility is a key issue for each center.

8. After the general session adjourned, IRRI and CIAT representatives discussed how the rice development needs of Latin America might best be met. The group agreed on the following procedure: (a) Jennings to prepare an analysis of the rice situation in Latin America, why it is an important research area, and suggesting the kind of program that should be undertaken without regard to who does it; (b) in this or a separate paper, a possible operational plan to be outlined in which IRRI would assume core responsibilities for rice in Latin America but would carry these out through appropriate arrangements with CIAT and relevant national programs, and (c) these proposals to be submitted to the IRRI and CIAT boards for informal discussions at an early date.

Q. Inter-Center Responsibilities: MAIZE

1. Representatives of CIMMYT and CIAT considered how the maize research, development and training needs of South America might be more effectively met. Presently, CIAT operates a regional maize program in the five Andean countries, Colombia, Venezuela, Ecuador, Peru and Bolivia, through which materials originating at CIMMYT and elsewhere are tested in variety of environments. In addition, the CIAT maize staff carries out certain research activities related to reducing corn height, photoperiodism, and insect and disease resistance.
2. Questions have arisen within and outside of CIAT board and management with respect to the magnitude and direction of CIAT's maize program. Further, CIAT has received requests to extend its maize activities into some other areas of South America, particularly the tropical areas of Brazil. Grant said CIAT was faced with defining its priorities among commodities, particularly with respect to core funds and staff. Consequently, there were pressures to discontinue work on maize while at the same time it was one of the principal crops in the region and a basic part of the farming systems.
3. A committee consisting of Sprague, Francis and Alvarez-Luna outlined a collaborative program between CIAT and CIMMYT whereby CIAT's work in the Andean zone would be strengthened and, at the same time, expanded in area to include Equatorial Brazil. This proposed working agreement will be submitted to the respective boards for informal discussion.

R. Meeting at IITA in 1975

1. The Directors agreed to meet for 4 or 5 days in 1975 at IITA, selecting the dates for February 23 (arrival) with the sessions to begin on February 24.
2. It was generally agreed that programming would emphasize topics of interest in general principles to all centers. Topics proposed included: (a) Review of world food stocks and prices combined with review of world food protein situation; (b) constraints to adoption of new technology and constraints on yields in farmers' fields; (c) land utilization issues and alternatives; (d) unconventional systems of nitrogen fixation and other fertilizer sources; (e) invite Maurice Strong to report on ways the new UN Environmental Program may relate to the work of the Centers; (f) review of grain legume research at various Centers; (g) topics which may grow out of actions and developments within or by CG and TAC; (h) discussion of principles promoted by the Club of Rome.

S. UNDP-FAO Workshop on Application of Agricultural Research in Latin America

1. Byrnes outlined the developments leading up to this workshop, scheduled for April 26-May 2, and reviewed the proposed program. Participating centers will be CIP, CIMMYT, CIAT, ICRISAT, and CATIE (Centro Agrícola Tropical de Investigación y Enseñanza). Participating agencies will include FAO, UNDP, IBRD, BID, and IICA.
2. At the request of CIP and CIMMYT, the presentation of these Centers will be moved as late in the week as possible.

T. Evaluation of Protein Quantity and Quality

1. Dr. Charles Francis, CIAT maize breeder, and Dr. Alberto Pradilla, pediatrician at the University of the Valley who had just completed a year's sabbatical leave at CIAT, reported briefly on their efforts to evaluate biologically protein quantity and quality in foods, particularly corn. They reported on laboratory analyses, as well as trials with small animals, swine, and humans.
2. Urging the Directors to consider the total food consumption patterns of people, Pradilla said we must treat malnutrition as a symptom of many things which are wrong in a community. He emphasized that data from human evaluation studies provide dramatic evidence to convince national leaders of appropriate courses of action.
3. Discussion centered on the ideas that (a) man depends upon a mixed diet; (b) there is a need to assess alternatives in terms of nutrition and production potentials, and (c) Centers need to be concerned about the total food production program in a country.
4. Francis outlined how Centers can make a unique contribution by stimulating cooperative efforts among national programs in agriculture, health, education, and medicine, as well as with seed producers, food processors, and marketing agencies.
5. While Directors raised the question "What is lacking in the agricultural scientists' understanding of what must be done to meet food needs?", no concrete answer emerged from the discussion.

U. Other Administrative Matters

1. The question of shifting the fiscal year basis of Center operations was raised, but there was no consensus for change.

2. Directors expressed concern for having available better data on changes in cost of living, as well as the influence of fluctuations of the dollar and local currency on the salaries of both international and local staff. There is a need to have a regular system of evaluating what is going on.
3. A related issue was the differences in ways donor payments are made. Some donors make pledges in dollars, and some in their own currency. This has an adverse affect on the budgets of some centers. Some donors pledge at a plateau of dollars, same level, year after year, and their contributions buy proportionately less each year.
4. Also there are variations in what a dollar will buy in various countries as a function of devaluation and rising costs.
5. Clarification is needed on the appropriate channels for requests for written reports originating with donor agencies, CG, TAC, FAO, or other international bodies. On occasions, such requests have gone directly from an international agency to a staff member of a Center working in the field away from headquarters.
6. There is a growing problem of coordinating and scheduling conferences involving staff members of the various Centers. The schedule being circulated by the CG secretariat helps but is not comprehensive enough, nor cast far enough into the future, to facilitate planning. Directors agreed to consider this matter further at the July meeting.

V. Meeting with World Food Institute Representatives

1. Four representatives of the World Food Institute, Iowa State University, were visiting CIAT during the week of the meeting of Center Directors, and the two groups had a luncheon meeting.
2. Members of the group outlined the activities and interests of Iowa State University in cooperating in the work of the centers, and announced plans for the World Food Conference of 1976. This will be held at Iowa State University, June 27-July 1, 1976, the theme being "The Role of the Professional in Feeding Mankind." Additional information is available from Dr. William W. Marion, Chairman, World Food Conference, 201 Kildee Hall, Iowa State University, Ames, Iowa, 50010. Telephone: 515 294-2570. Dr. W. F. Wedin is director of the World Food Institute.

CIMMYT
El Batan
April 2, 1974

Notes on world fertilizer situation, and its impact
upon the work of the international centers

(These notes are based partly on a seminar at Cali, Colombia, led by Dr. Don McCune of TVA, on March 4, 1974; partly on a discussion at Cali among the Directors of international centers, on March 5; and partly on a seminar at the CIMMYT annual Trustees meeting, led by Dr. McCune in Mexico on April 1, 1974. Haldore Hanson).

Speaker: Dr. Donald L. McCune
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Biodata: Rockefeller Foundation agricultural staff in Chile, 1957-62.
Since 1962, with TVA.

The fertilizer outlook as seen by TVA.

In 1973 the price of nitrogen and phosphate fertilizers doubled, and even tripled in some parts of the world. Some fertilizer importing countries like India have not been able to fill their fertilizer orders in 1974.

The significance is obvious. The recent agricultural revolution was built upon new varieties of wheat and rice which are more efficient in their use of fertilizer to produce grain. But without the fertilizer, they are not much better than traditional varieties.

One million tons of nitrogen fertilizer, nutrient weight, will produce an additional ten million tons of grain, if properly applied to the new varieties. Therefore for each million tons of shortfall in fertilizer this year, there will be a drop in production of ten million tons of grain.

The fertilizer outlook is a very important factor to the international centers. They need answers to three basic questions: How long will the present fertilizer shortage last? Will the present high prices come down?

Should there be a change in recommended technology which now is dependent upon chemical fertilizers?

Answers will be suggested to these questions, based upon information at TVA. TVA has a major research organization for fertilizer products and for design of fertilizer factories. TVA has served as consultant on fertilizer to 30 foreign governments. TVA publishes a World Fertilizer Market Review, and the latest review is being issued in March, 1974. ^{1/} The FAO, the World Bank, and other international institutions look to TVA and its Fertilizer Review as an important source of information about future markets for fertilizer.

The fertilizer crisis of 1973-74 grew out of a series of events spread over the last decade:

First, the fertilizer industry is a cyclical industry, a boom-and-bust industry, like agriculture itself. A period of over-expansion in the world-wide industry occurred in the mid-1960s, and about 1968 there was a substantial drop in prices. The industry reacted by building almost no new factories for five years starting in 1968, and some old factories were closed.

Next, widespread drought occurred in 1972, causing a slight drop in world food production, actually a drop of only 4% in world cereals. But this small change brought violent reaction in world grain trade. The price of wheat and corn doubled, and the price of rice and soybeans tripled.

Third, Governments were forced to draw down their food stocks in the 1972 drought. Naturally, they sought to rebuild their supplies by importing more fertilizers. At the same time, farmers in the exporting countries, like the U.S.A. and Canada, also sought to take advantage of high grain prices by buying more fertilizer. This pushed the demand for fertilizer in 1973 to an historic peak, beyond the capacity of the industry. So prices of fertilizer products doubled and tripled.

^{1/} T.V.A., World Fertilizer Market Review and Outlook, 1974, printed, 68 pp.

Now what is the outlook?

In the short run, TVA estimates that a fertilizer shortage will continue until enough new factories are built to meet the demand. The shortage of phosphate fertilizers is expected to continue two more years, to 1976; the shortage of nitrogen fertilizers to continue four more years to 1978.

Meanwhile, some 30 or 40 new factories, mostly for urea, are under construction during 1974-78, or under negotiation, to operate in Canada, the Caribbean, the Persian Gulf, Eastern Europe, the Soviet Union, China, and Indonesia. As these new factories come on stream, the shortage of fertilizer will diminish and eventually disappear. The next four years will be a period of privation, but the end of the present shortage is in sight.

The outlook for prices is not so good. TVA does not anticipate fertilizer prices will ever again return to levels that existed before 1972, because the industry is drawing upon more expensive raw materials, more expensive labor, and will operate in some developing countries where efficiency of operation will not be as high. No one likes to predict future prices, but we may be safe to plan on prices 50% higher than those before 1972.

And what is the outlook beyond 1980?

There should be no shortage of raw materials for nitrogen, phosphate or potash fertilizer. The world is still flaring (or destroying) more natural gas at the well head than it is using in the entire nitrogen industry. Raw materials for phosphate and potash are plentiful but new mines will need to be developed.

It is quite possible that expansion of the fertilizer industry during the 1970s will produce another glut by 1978, similar to the glut of 1968.

Looking farther ahead, TVA sees no reason why the fertilizer industry cannot increase its product as rapidly as agriculture demands it, up to the end of this century and further. If population doubles, and food production doubles, the fertilizer industry can also double, or more than double. The strategy of food production can continue to rely upon chemical fertilizer to 2000 A. D., and beyond.

But there is one caution: the economics of fertilizer has changed, perhaps permanently. Prices will remain higher than in the 1960s. National

programs must reassess the recommended levels of fertilizer. And international research centers must help in the testing of efficient fertilizer products, and more efficient fertilizer practices, to enable farmers to get the most out of higher-cost fertilizer.

Impact of the fertilizer situation on the research and outreach programs of international centers.

(1) Farmers are now wasting a large part of the nitrogen fertilizer they apply.

For example, in the temperate zone, food crops now take up only 50% of the nitrogen applied in the form of fertilizer. The other 50% is lost.

In the tropics only 25% of the nitrogen applied to food crops is taken up, and the other 75% is lost.

Much of this loss in the tropics is caused by farmers who broadcast their fertilizer, instead of turning it under.

Another waste is caused by farmers who do not control insects and diseases. Plants which are fertilized, and then damaged by insects and diseases, cannot pay for the cost of fertilizer with grain.

Lack of weed control in the tropics is another fertilizer waste. Weeds sometimes take up more fertilizer than the crop.

Problem soils can cause fertilizer waste. Zinc deficiency in the soil, for example, inhibits the uptake of nitrogen by the plants. This is correctible.

Some steps to reduce waste of chemical fertilizer are well known. Nevertheless, making these changes on the farmers' fields will require a large effort by national extension programs. If all these changes were possible, we might eliminate half the fertilizer losses; in other words, we might produce twice as much grain per kilo of fertilizer nutrients.

(2) There are new fertilizer products and new ways of applying fertilizer which may prove useful.

For example, a pelleted fertilizer coated with sulphur is being tested in Asia. This is a slow release product which makes the nitrogen available at approximately the time that the plant is ready to take up the nutrient. Planners of this product believe it will reduce losses.

Another experimental approach is a foliar spray for nitrogen. India

is testing the application of urea as a spray on the crop leaves. Under some circumstances, this gives a greater response in grain than the same amount of urea applied to the root zone.

Both the slow-release pellet and the foliar spray require more study.

(3) Some agricultural planners advocate greater use of natural nitrogen. This could mean more legumes in the crop rotation, more composting, more use of house and barn manures on the fields. All these sources of natural nitrogen should be reassessed, in comparison with high-cost chemical fertilizer.

But the Directors expressed the belief that organic agriculture, using natural sources of nitrogen, can play only a marginal role in world-wide agriculture, and does not offer a significant alternative to chemical fertilizers.

(4) "Radical research" may produce new sources of fertility by the end of the century.

Some legumes, we know, have the capacity to form an association between their roots and soil bacteria. The bacterium transform nitrogen from the air into ammonia and nitrates in the root zone. Question: can this ability of the legume plant to feed itself be transferred to other food crops? This is beyond today's horizon.

Other plants produce some of their own food. In rice paddies, both algae and bacteria are able to fix nitrogen from the air and deposit it in the root zone of the rice plant. In sugar cane, bacterium feed upon the sugars in the roots, and in return, they deposit nitrogen products which are used to feed the sugar cane. Perhaps the strangest example is the pine tree which is able to grow in pure silica sand, with no visible nutrients, because a fungus known as mycorrhiza lives upon the pine roots and fixes nitrogen from the air.

No scientist has succeeded in domesticating these nitrogen-fixing processes and in transferring these benefits from one crop to another. This might happen by the end of the century.

To sum up:

The present shortage of fertilizer supplies will continue for two more years in phosphates; for four more years in nitrogen fertilizer. The shortage is not permanent. It is caused by insufficient factory capacity in 1973-74. That shortage of capacity is now being remedied. Through the 1980s and 1990s, there is no present reason why the fertilizer industry cannot produce as much

chemical product as agriculture demands. And there is no reason why scientists should not continue to build their strategy of food production upon chemical fertilizer.

But the economics of fertilizer has changed. Prices of fertilizer will remain high. Prices of food grain may also remain higher than in 1972. Every national program will need to reassess the level of fertilizer which it is recommending. And the international centers must help to test new chemical products, and new methods of applying chemicals, so that the national programs and the farmers can get more grain from high-priced fertilizer.

Miscellaneous notes:

USA deficit: The USA will be a net importer of nitrogen fertilizer starting in 1974. But there will be new factories constructed in Canada, Mexico, and the Caribbean which will alleviate the impact and help serve the markets formerly served by the USA.

Mainland China may construct as many as 16 new urea plants during the period 1974-78 and will then cut back its imports of fertilizer, which will ease the world supply.

Fertilizer problems in the tropics: With new factories being constructed in the tropics, there is need for more research on fertilizer in the tropics, including new products, new factory designs, new bagging and shipping procedures, etc. This research is not now taking place, and TVA does not consider this a function of TVA.

Eighty percent of the world's fertilizer consumption is in the temperate zone and 20% in the tropics. Therefore commercial planners do not give much attention to the tropics. There is a large loss from inappropriate products in the tropics, wet and hardened product in shipment, broken bags etc. These shortcomings are now being copied into new factories for the tropics.

Phosphate fertilizer does not give the same response in the tropics, as in the temperate zone. Special research is needed.

The traditional belief that N-P-K are the three principal chemical nutrients for crops is an idea developed in the temperate zone, and may prove incorrect in the tropics. Sulphur is a widely limiting factor in tropical soils, and lime to correct low pH is another widespread need. More research is needed to establish the limiting nutrients for the tropics.

Size of plant, and cost of product: Size of fertilizer factory greatly influences the cost of resulting product.

An ammonia factory with capacity of 1000 tons a day delivers product at \$50 a ton, if the price of natural gas is 60c a cubic foot. A 200 ton per day factory, using the same price of gas, will deliver product at \$75 - 80 a ton.

Urea cost of product drops from \$80 to \$50 a ton as the capacity of the factory increases from 200 tons a day to 1000 tons a day (both using natural gas at 60c a cubic foot).

Notes on TVA fertilizer program.

The TVA Charter of the 1930s limited TVA work to the Tennessee Valley, except for fertilizer, for which TVA was given a national mandate.

TVA decided to work on research and development of fertilizer products and plants, on a national scale. This later extended to foreign countries and TVA has now served as consultant to 30 governments.

TVA tests fertilizers in the USA through land grant universities but does not have its own extension services at farm level.

Since 1965 TVA has issued a world-wide situation report on the fertilizer industry, covering factory capacity, estimates of production, estimates of world supply, forecast of world prices, intelligence service on who is building new types of future factories etc.

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P R O C E E D I N G S

MR. DEMUTH: Gentlemen, we have a short but heavy agenda today. There are not many items, but the items are, I suspect, full of meat worthy of discussion, if I am not mixing a metaphor too badly.

When we adjourned last evening we were still on Item 6, the center review procedures. And on that item we had before us a suggestion that maybe these review procedures, plus the issue of medium term planning for the Consultative Group itself might be considered by a subcommittee of the Consultative Group.

I would like, if the Group agrees, to separate these two items of review procedures and medium term ~~terminal~~ planning for the Consultative Group, although recognizing that they are interrelated, that the reviews of the center activities must be an important input into the programming exercise. But, as you have noted from your papers, we are going to be discussing, as the last item on our agenda today, we are going to initiate a discussion of the TAC paper on priorities which, in effect, is a first step in the direction of some kind of medium term programming.

I don't think, by any means, that we are going to conclude that discussion today. I think we are going to want

to continue it at our next meeting in the fall, and I think only after we conclude that discussion shall we consider what kind of a programming mechanism, if any, we want to establish.

Meantime, we must make some plans for whatever kind of annual performance and budget reviews the Group might desire to have for 1974. .

I would suggest that we separate these two items for present purposes and that we consider the proposal for a subcommittee as relating to those immediate review procedures and not at the present time, at least, connected with medium ~~terminal~~ programming for the Consultative Group.

Having said that, Dr. Bernstein has asked for the floor, and I will call on him.

MR. BERNSTEIN: Thank you, Mr. Chairman.

I would like to take the liberty, because I think the problems we were discussing yesterday evening are so important to share some of our background thinking with the members of the Consultative Group.

I think our thinking begins with the concept that the Chairman reminded us about yesterday, which he reminded us that he has frequently put to this group as a basic concern, the need to preserve the autonomous scientific management capability of the centers.

From the beginning of the Consultative Group, it has been very much our own concern, shared with many others around this table. In fact, you will recall we stated this as a condition of U. S. support when we first indicated the extent of our expected support.

However, we believe that simply the question is: How do we achieve it and secure it, and how do we do this in the face of the varying needs of the large group of donors, which we all welcome, the notion of the growth of the group of donors in the face of their very needs to exercise stewardship of the Fund in their charge.

Once we face this situation, it is clear that the relationship of the donors to the centers can never be as simple as that in any way, say, one or two foundations are providing the basic support for individual centers.

Moreover, the dimensions of the problem expand, of course, as the number of centers expand, and the prospective new research programs, a number of those expand.

It is becoming ever clear that the potential scope of worthwhile research is well beyond the financial resources now foreseeable, even if we confine ourselves to food, to the world food problem, and even if we triple, let's say, arbitrarily the 1973 level of financial support.

Therefore, the donors need some means of choosing between worthwhile efforts and of doing so as the economists say at the margin, that is, deciding not just that we will work on wheat and ignore cotton, but the more difficult decisions of how much more is done about wheat compared to some new increments that are recommended with respect to, say, grain legumes.

The centers, of course, need to do the same, to make the same kind of choices but within the smaller scope of the potential work of each center. Both this Group and the centers require appropriate information to be able to make deliberate decisions on these kinds of questions which they cannot avoid.

Solving these problems, getting more useful information to guide the decision making that the donors must do if they are to provide funds, and information needed for decisions on husbanding scarce funds for the highest priority uses. Solving these problems is inherent in the Consultative Group function.

Our function is to mobilize support for the centers. We need the tools to do this. We believe it is quite possible to do it without damaging the management integrity of the centers and without serious inconvenience, although we, I think

realistically, must recognize that it is always inconvenient to have to provide more information and to answer questions.

Some, perhaps most of the same information is also useful and desirable for internal center planning, and it has, in fact, been progress; and I believe some heartening progress over the past year, that demonstrates the feasibility of doing what is needed.

The center adoption of common budget framework, for example, was encouraged by needs expressed here in the Consultative Group. I don't think this has proved to be painful, once achieved it may be with some pain in getting to the form that is now used, but having been obtained there is no doubt that this is going to be very helpful both to the centers and to the donors.

I think one significant gain from the first round of bank reviews of center programs, and from the Consultative Group discussion that led to them, was that a number of the centers have identified the program content and the level at which they plan to stabilize in terms of their present thinking, which is the same as the ceiling concept that was proposed here yesterday.

Moreover, there are a series of useful suggestions in the Secretariat paper that we were looking at yesterday

that would move us further toward the good reconciliation of the need to preserve the management integrity of the centers and also meet the decision making needs of the donors.

The list of suggestions offered by the directors for improving this review process that was presented to us yesterday by Dr. Hanson are, I feel, very useful and fit the need as was indicated in the excellent statement yesterday by Mr. Evans.

So that with a little more effort I think we can develop a system that is compatible with the needs all around. We shouldn't treat this, I think, as a secondary matter. It is one of great importance. It is very important for the individual centers, the ability to protect and enhance their future, and even more important for the wider cause of developing support for agricultural research to support the development of the poor country.

I think it is one of those troublesome problems that always arises in developing a new institutional device such as this consultative group. This is a unique device for international cooperation.

We believe it is potentially very significant and powerful, and we would not want to see it slow down or impede or to falter on some standard budget management problems.

I think all of us are concerned with the need to have the protection that is provided, protection for this whole system which is provided by independent review of the use of management funds against approved programs and against some set of reasonable cost efficiency criteria, if there is a process of this kind that is functioning well, it should be both a help to the individual centers in their own management analysis and a protection to them, protection in a variety of senses, against arbitrary and unfounded criticism from outside, protection against multiple parallel actions that individual donors might feel compelled to take in order to achieve the same purpose.

So that this is one of the sort of standard types of protections which we feel is essential and it would be, I think, rather ridiculous, really, to look at this as a question of infringement of management sovereignty for the center managements.

To allocate scarce funds, we need a means of knowing what the financial implications are of what is being undertaken. This is another type of information that is needed and that is why we are suggesting that the centers do their best to think and plan in the terms of finite sets of program objectives, define as clearly as possible and to try and

anticipate the time and cost of recognizing that this is a difficult process for research. It is going to be very inexact, that it would be wrong to try to hold any center to this type of estimating. Yet it is very useful, very essential if we are going to make deliberate decisions among the difficult choices that are before us.

There is no way that we can expect individual centers to choose between the programs in their charge or within their reach and other programs. Nor is it sensible to expect the best balance from an over-all development point of view, to emerge simply as individual centers decide the budget.

That is why we need some system to establish center program bounds by budget means, so that decisions to go beyond these bounds can be shared by all concerned.

Certainly there is no desire in any such system to impede such decisions to go beyond these bounds or to prevent them in any way.

It is simply to know what they are, so that we can make reasonable choices.

That is what the ceiling proposal is concerned with. It assumes, in fact it depends on the center management continuing to be fully responsible for planning whatever they think should be done within the programs and funds made

available or making all the decisions on what to do and for completely controlling the implementation of the programs in their charge.

As I remarked yesterday, we have great faith in the centers and also in the ability of this new form of cooperation presented by this group to expand the scope and impact of the center's work.

Personally, I found the sessions on Monday and Tuesday very inspiring in terms of the vision that they open as to what can be achieved, but I think that we do need to secure the foundations better in order to realize the dreams that we all have of great achievement from these programs.

Thank you, Mr. Chairman.

MR. DEMUTH: Thank you, Dr. Bernstein.

Anybody else who wishes to speak to this subject?

If not, I ask whether the group would agree with the suggestion that has been put forward that we have a subcommittee look at the review and information requirements from the standpoint of the various purposes that these review and information requirements have to serve, but not including at this point consideration of the mechanism, if any, that we need for formulating a medium term Consultative Group program, although recognizing the need that we have such a

program and that we must have an input of information largely partly coming from these reviews and largely coming from the technical advisory committee, but reserving for some time subsequent to our November meeting the question of what mechanism there may be for the formulation of such review.

Would that be a generally acceptable way of proceeding from here on, on this point?

I see heads nodding.

Mr. Mathieson?

MR. MATHIESON: Yes, sir, as far as I am concerned, Mr. Chairman, it is generally acceptable.

There are, of course, subsequent questions to be considered, that is composition, timing, and so on.

The subcommittee, were you considering a standing subcommittee meeting, or a subcommittee meeting specifically somewhere between now and November, or how are you envisioning the mechanics of the operation?

MR. DEMUTH: I was going to come to that once we agreed on the subcommittee.

I do not have in mind a standing subcommittee but a subcommittee that would report to our meeting in November, if that is when we decide to have our autumn meeting, and among the recommendations that they might recommend that there

be a standing committee.

For the moment I think what we need is a consideration of all these questions, and a specific set of recommendations coming to us in November.

As to the composition, I think it is always a peril to put forward a good idea, because when you put forward a good idea you are frequently landed with the responsibility of carrying out, and this good idea having been put forward by Mr. Bell, I was about to ask Mr. Bell if he or Dr. Hardin might take the responsibility for chairing the committee.

I would wish the center directors to designate one of their members to sit on the committee, and I would certainly want the technical advisory committee to designate one of their members to sit with this committee, and then I think if it was agreeable I would leave it up to all of the members of the Consultative Group who are interested to determine whether or not they want to be represented at the committee and to designate their representative.

MR. BELL: Yes, sir. Well, if that is your wish and the Group's wish.

I would like to emphasize for the record that my suggestion was a good deal broader than what you are now putting forward, if I understand it correctly.

My thoughts were very much along the lines of what Dr. Bernstein this morning -- namely, that we need not only a clearer and more widely agreed review process, we also need a clearer and more widely agreed forward-planning process.

It is perfectly all right with me if you propose to defer the second part and look at that later. So far as doing some work between now and November, the first set of questions I think we will be glad to undertake that.

If I might offhand suggest that we would try for a very simple process, probably to develop an initial draft of a brief statement covering the principal issues that have come out here, including the comments of the mission director, I mean the center directors, as forwarded by Mr. Hanson. We would propose to circulate that to anybody who is interested, probably have one meeting and hopefully agree on paper which could then be circulated for the November meeting of this group, if it is a November meeting that we come up with.

If we are to operate as you suggest, not with a designated small group but with as many representatives of the members of the group as may be interested, it would probably be most convenient to have the meeting here, the single meeting that you have suggested, and indeed, in this building, if the Bank would permit it.

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availability of funds.

(Laughter.)

MR. DEMUTH: Any other comments on this paper?

(No response.)

If not, thank you very much, Mr. Ruddy. I think it was quite appropriate for Mr. Bell to express the congratulations of the Group for the progress that has been made because Mr. Bell is perhaps the one that has put the greatest pressure on the secretariat and the centers to make this progress, and we are aware that he is satisfied with what has gone up to now.

MR. BELL: Not only satisfied, but admiring.

MR. DEMUTH: I suggest, then, we move to item 6 which will be the last item on our agenda this afternoon, on center review procedures.

You remember that we discussed this matter at some length at the International Centers Week last year and again at our meeting in November. Most of you will remember that we made a first attempt at conducting such reviews last year -- I am referring now to the progress in 1972 -- when the program of each center was looked at by either an FAO or a Bank staff member who prepared a fairly informal report on its findings for the Technical Advisory Committee and for

this group.

This year, as you will have seen from the reviews circulated by the secretariat, we have attempted something that is rather more organized and somewhat more ambitious. And for this purpose, we augmented the Consultative Group staff, first by employing on a part-time basis two senior agricultural consultants -- Mr. Evans and Dr. Dion -- and, second, by seconding to that staff a budgetary expert Mr. Urquhart from the Bank's programming and budgeting department, and I think I can express the view of the Group in saying that we are extremely grateful to Mr. Evans, Dr. Dion, and Mr. Urquhart for their participation in this work.

When we discussed this matter last year, members of the Group put, and I think quite rightly, a lot of stress on the delicate questions of relationships with the centers to which the reviews might give rise. And in particular stressed the importance of avoiding interference with the day-to-day operations of the centers and that the reviewers not infringe or appear to infringe on the independence of the Board of Trustees and the Center Directors.

Thanks to the tact of Mr. Evans and Dr. Dion, I think these pitfalls have been successfully avoided.

But a number of other problems have revealed

themselves, at last some of which are summarized in a paper prepared by the secretariat, which has been circulated to you and which makes certain suggestions on review procedures for the future.

In addition, the Directors have indicated to me that they want to make some comments to the Group on future review procedures which I believe are quite consistent with some of the suggestions at least that are presented in the secretariat's paper.

So, if agreeable to the Group, I will first call on Mr. Hanson who has been designated by the Directors to speak for them on this item, and then to ask the views of the Group, first on any aspect of the reviews that were carried out this year and, secondly, on the suggestions for improvement made in the secretariat's paper.

But, first, Mr. Hanson.

MR. HANSON: The Directors met here in the building last Saturday afternoon on an agenda of items of common interest, and one of them was this topic of the reviews that had been made by the representatives of the Consultative Group.

We thought it would save time of this Group if we put down on paper a few ideas which I am giving to the

secretariat and that we just made one presentation.

There was consensus among the Directors that the review process for both program and administration has been useful. And when I speak of process, I mean the many different reviews that are going on. We realize that there still is possible rationalization of those. We have had a staff review, we have had a trustee review, we have had this visiting group, we have had in our own case an outside group reviewing administration. We are not complaining, we are just saying that if we study it, we are quite sure that these can be dovetailed better and we will still get the same benefits, and we hope you will get what you wish to get out of it.

Let me run down a few points that we put down. Each of the six centers receiving funds from the Consultative Group was visited by two men for one week sometime between March and June. We are quite satisfied from our standpoint with the reports that issued from this. In fact, several centers said they expected much greater criticism than they found of themselves in these reports.

But it is our feeling that based upon the experience this year, we should be able to offer some suggestions, and so should the donors, so should the secretariat, that would

result in still better results next year. So here are the points.

First, we felt that the terms of reference issued by the secretariat to the reviewers who came were not sufficiently concrete to identify exactly what was to be done. And this was particularly true on the administrative side. The program reviewers were professional agricultural scientists and it was assumed that they were capable of interpreting their assignment. But the administrative people did not have any guidelines, and as a result, the resulting comments on the different centers are quite dissimilar.

The Directors of the centers are prepared to work with the secretariat if the secretariat wishes in introducing our ideas for the terms of reference next year, which ought to be done by January.

Second, the number of program reviewers could probably be rethought. It was our feeling that one man working alone was overburdened on the agricultural side; that a two-man agricultural team plus one on administration would have greatly helped, I think not only in dividing labor, but in consulting each other.

We also feel that if each team that visits the centers could handle only two centers rather than three, it

could considerably help on the time schedule, but it puts a much greater burden on the chairman and secretariat to find the people of suitable quality to do this work.

It is our assumption, also that there ought to be an overlap from year to year, not a complete duplication, but an overlap so that there is some continuity of judgment shown from one year to the next.

Third point was that we urge that the visit to the centers, if possible, be combined with one of the internal reviews so that we don't have to keep scheduling a separate week for each of these reviews. I can speak with appreciation that George Dion who visited CIMMYT came at a time when we were having a general review for our trustees and a few other visitors, and he participated in that and he was no burden at all. There are some other centers which, because of the pressure of the time schedule, had to receive these reviewers at a time that was most inconvenient, and it was simply a double burden. I am not sure how we are going to solve this, but is related to the fact that we are trying to squeeze a great deal of work into the time sequence between the trustees meeting when the budgets are approved and, say, the July 1 dateline that Harold Graves was trying to observe. And it may not be possible for one team to visit three

different centers and write three different reports in that time period.

Number four, if the reviewers visit a center at a time when trustees are meeting, we urge that our trustees should invite the reviewers to participate in the meeting and review their findings. But at the same time we believe that these reviewers should not participate in the trustees meeting at the time when the annual budget is being reviewed and approved. That is a time, it seems to us, when the relationship between the Director and his trustees is a private one, and it ought to remain so.

This is not a criticism as far as I am aware; nobody is complaining about what happened this year.

Number five, the Directors would welcome questions submitted to the centers in advance, either on the program or on the administration, so that adequate information can be awaiting the arrival of the team. I would offer one comment which I have already discussed with Mr. Urquhart. He was looking for the official inflation rate of Mexico. There is no problem if we had known what he wanted of our going to the State Bank of Mexico and getting him the official figures and handing it to him. It was simply that we didn't know in advance that that was one of the questions that would

arise.

Number six, the Directors believe that no criticism of their program or administration should take them by surprise when these reports are issued. We see no reason why the reviewers are not able, while they are there during their visit, to summarize what their findings are and what their criticisms are. We are not objecting to criticism. We are just saying that if this kind of review takes place, there are two advantages -- first, that any misunderstandings can be corrected at that time, and, second, that a dialogue starts between the reviewer and the staff which may lead to corrective action much sooner than merely waiting for the writing of a report.

Number seven, the draft of the report should hopefully be completed in Washington at least two or three weeks before it is to be issued so that there is time for a copy to be sent to the centers for correction of errors of fact. In any report of the length that you received this year, written by outsiders, there are bound to be some errors that creep into the reading of all the documents and trying to summarize so much technical information. And we would be happy to help find those if there is time. I am not directing this at Harold Graves because he had his time problems, too,

and a number of the center Directors showed up in Washington to find their reports at this meeting had been circulated and they had not yet seen a copy of it.

Those are the points I was going to make. We discussed this with the TAC this morning. In no sense am I going to try to speak for TAC, but because we listened to some of their discussion with our Directors, let me comment that there were two or three different suggestions came up on how to reduce this tightness of time schedule, and I am not sure that any of them are wholly satisfactory.

One was, could the reports be aimed at the November meeting rather than the July meeting? This has the merit of adding 60 days or so to the time schedule from the trustees meeting until you try to issue the report. I was told that from the standpoint of TAC's assignment this is not acceptable, that they need these reports at the time they pass judgment upon the proposed program.

Another proposal was that each center might be reviewed every two years but that the centers chosen for review should be staggered so that at the present moment you would be reviewing three each year rather than six, and this would help to reduce the workload.

Another suggestion that one of the centers offered

offered, because it would help to reduce the volume of writing by the reviewers, was that if they would retreat the staff review documents as the principal description of program and would not attempt to describe the program, but only to offer comments, both on that document and on the program activities that are reported in there. CIMMYT attempted that in that the staff review which is some 60 pages long was given to our trustees program committee and they came up with a much shorter document which made no attempt to duplicate the description but only to offer comment and describe issues.

Mr. Chairman, those are our suggestions.

MR. DEMUTH: Thank you very much, Dr. Hanson.

I think we will arrange to circulate that statement to the Group tomorrow so that you all may have a copy of it.

In many respects what you have suggested conforms to the suggestions made in the secretariat's paper, namely, that any one review team should not have more than two centers to examine, that there should be two substantive reviewers on each team rather than just one, and certainly in terms of there being no surprises for the directors, the kind of dialogue that is suggested in the secretariat's paper would obviate that kind of problem. And I was very glad to hear your last suggestion about diminishing the description by

starting out from the center's own program and concentrating on the progress that has been made in carrying out that program, deviations from the program, whether it is the number of people that were expected to be employed. have been employed, what the efficiency of the administration is, but not try to repeat or replicate the center's program as presented by the center itself, and, indeed, as supported by the Consultative Group. •

What we have suggested and what you have suggested both raise the question of manpower. And as we pointed out in the secretariat's paper, this is a very difficult problem because it's a seasonal job to a large extent, and it requires a very high level of competence.

..
.. In the secretariat's paper we have suggested one way perhaps of meeting this problem would be for the members of the Group with technical staffs to second or at least nominate members of those staff to secondment to the secretariat for periods of a few months as in fact CIDA did with Dr. Dion, so that we would have for the benefit of the Group not only the resources that can be found in the secretariat provided by the Bank, but also in the ranks of the experts of the various members of the Group. And I would very much like to hear -- and in this I refer not just to governments, but

to public and private foundations as well -- I would very much like to get views on the practicality of that suggestion in the course of your comments on this whole item.

Mr. Hulse.

MR. HULSE: Mr. Chairman, the point which you have just raised, and it is also stated in paragraph 30 of the secretariat's document, this possibility of members of the Group providing their own staff members, I wonder, sir, whether the Group might consider the possibility of members making available other scientists from their own countries. I can't commit my Board of Governors, but I feel that there are a number of scientists in Canada who might be acceptable. And I think that we would respond very sympathetically to making it possible for such of those as you felt were suited to this job, making it possible for them to take part in this.

...
I have a very small staff, and therefore to second one of my people would be virtually impossible. But I think we would be very sympathetic to making it possible for other Canadian scientists acceptable to the Group to participate. And I would like to have your views, sir, and perhaps those of the other members of the Board on this as a general principle.

MR. DEMUTH: I think that is a very constructive and helpful amendment of the suggestion we put forward, and I

would like to adopt it and say it would be highly acceptable.

Dr. Bernstein.

DR. BERNSTEIN: Mr. Chairman, my first comment is about the timing and interaction of the Bank's review process with budgetary work of the center managements.

The problem which has been discussed at some length here before and which Mr. Hanson addressed on behalf of the Directors is how to get a good reconciliation of the need to preserve the management responsibility of the centers' managements with the needs of the donors to exercise responsible stewardship of their funds in their charge.

In reviewing the proposals in paragraph 26 and 27, which were addressed to that need, it seemed to us that this did provide a good reconciliation.

I am not certain from Dr. Hanson's comments whether they are fully compatible on every point. He did mention the problem of the privacy of the relationship between the Director and the Board of Trustees when the budget is being approved. And I would agree that that's very important. I interpreted paragraph 27 to suggest that that privacy would be respected, but that at the same time prior to that point it would be desirable from all points of view for the Boards and review teams to be able to have a dialogue. I think we would

probably all agree that the most desirable and useful situation is where these reports are primarily used for the center's own management so that they can have a chance to consider them and to act as they think is appropriate in the light of their recommendation.

So that we do applaud those proposals in these two paragraphs, and I would hope that they would meet the considerations that Dr. Hanson raised.

My second comment is concerned with the cost efficiency element of the annual Bank reviews. In prior meetings the donors stressed the need for a thorough cost efficiency review by the Bank staff since they would need to depend heavily on this service as their primary source of assurance on the efficient use of funds that they have provided in lieu of direct checks by each donor.

In the substantive review area, of course, there are a variety of reviews and checks going on, and we would not be as dependent on this type of function. But for cost efficiency we are virtually completely dependent unless we do it ourselves.

And as the secretariat document suggests, we believe this component needs further strengthening. I think the timing proposals that are in the two paragraphs I just mentioned, 26 and 27, would of themselves help considerably in this

regard.

Third, Mr. Chairman, we would wholeheartedly endorse the suggestion in paragraph 20 of the secretariat's paper, which deals with the need to provide some indication of how the actual implementation of the program relates to past approved programs and budgets.

Fourth, on the question of the problems of secondment of personnel to help with this process, I share the view expressed by Dr. Hulse, we would be glad to try to help, and I think probably making some kind of consultants available is a more feasible proposition for getting good people at the time that you need them, the direct secondment of our own staff.

Finally, Mr. Chairman, we would like to put forward a proposal, in this case to the Bank. In the course of considerable discussion during the last two meetings of the Consultative Group, consensus emerged and the need for setting financial limits on center budgets, subject to appropriate adjustments. This was reflected in the secretariat paper for agenda 9 at the last Consultative Group meeting. If I may read the two relevant paragraphs, that report to the group said that reports of this kind can considerably advance the common interest of the centers and the Consultative Group. Evidently it will considerably facilitate the consideration of

financial requirements by members of the Group. It will help give effect to Group concerns about cost effectiveness and should considerably enhance the value of budgeting as an instrument of medium-term as well as annual planning for both Group and centers. The report should help provide the foundation for two other pieces of work desired by members of the Group: the establishment of a notional ceiling of financial support for each center over a period of years, subject to adjustments for rising prices and for the cost of additional activities undertaken with the endorsement of the Consultative Group.

And the second, had to do with the point we have already discussed.

The paper for this agenda item describes the small beginning in this direction in paragraphs 16 and 18. We believe it urgent that the Consultative Group get on with this task, given the rapidly rising and diverse requirements that are coming forward for center Group financial support. The fact that some of the centers have already provided leveling off proposals in their 1974 budget presentation should make it easier to do this.

Consequently, we propose that the Consultative Group request the IBRD to provide on the basis of its appraisals

and consultations with the management of the centers its recommendations of the desirable financial limits for the core and capital budgets of the individual center. These would be based on stabilization of each center's program on a specified set of major program goals, and we would be subject to adjustments for rising prices and for the cost of additional activities undertaken with the endorsement of the Consultative Group, this being the language of the proposal last year.

Specifically, the IBRD would be requested to provide the proposed recommendation for IRRI, CIMMYT, CIAT, IITA, IPC and ICRISAT for the years 1975 to 1978 prior to the Consultative Group meeting in the summer of 1974 for Consultative Group consideration at that meeting, and to provide by the following year provisional recommendations for ILRAD, ILCA, and other programs operating by 1974.

The course of prior Consultative Group discussions made it clear that a number of advantages are likely to accrue from the Consultative Group practice of setting limits for the financing that it is prepared to provide for individual centers.

First, it should help to keep the activities of each center adequately focused on one or a few major programs to achieve the critical massing of efforts needed for significant

breakthrough.

Second, it would also help the management of the centers to anticipate correctly financial availabilities for a number of years ahead, and thus facilitate efficient program and financial planning.

Third, both of these effects should facilitate working out an appropriate division of labor and avoidance of unnecessary duplications among the centers. As stated in several Consultative Group meetings, this becomes more important as the centers multiply.

Fourth, these several effects in turn would help the Consultative Group members and the Consultative Group secretariat to relate forward planning on overall financial availability, to planning for financial support of the individual centers existing or proposed.

Mr. Chairman, this proposal was not meant to under-emphasize in any way the excellent and highly significant research work that is going forward at the centers. We applaud this greatly and have been greatly encouraged by the reports that have come forward this week from the centers. Whatever is proposed to strengthen the management of resources must be kept in proper perspective, recognizing that the basic purpose of the centers is to produce better technologies that will

increase the well-being of developing countries peoples and the world food supply. We are confident and proud of the centers' role in this regard. However, the resources to expand their efforts are scarce compared to the growing requirements and they may become scarcer. They do need careful husbanding and management to permit the work of the centers to have the fullest possible impact. That is the purpose of our proposal.

MR. DEMUTH: Thank you, Dr. Bernstein.

Dr. Bell, I will call on you in a minute.

On your first point, on one of your points, Dr.

Bernstein, about the participation of review, program reviewers in the meetings of the Board of Trustees, the secretariat's paper makes clear that it would be desirable for these reviewers to be invited to an open part of this meeting, and it was designed to enable precisely what Dr. Hanson has suggested, and what you suggested, that they could make suggestions, comments to the Board of Trustees at the open part of the meeting, while obviously the discussion and final approval of the budget by the Board of Trustees would be done in a private session of the meeting that those program reviewers would not attend.

Does this, Dr. Hanson, conform to the proposal you had in your statement?

DR. HANSON: Yes.

MR. DEMUTH: Good.

Now, on other parts of the paper generally, Dr. Bernstein suggested notional ceilings be established for all of the centers.

Mr. Bell.

MR. BELL: Mr. Chairman, I would like to make two comments. First, I think we have got two issues before us which need to be kept distinct. The first issue relates to what is called in this staff paper the budget review, what Mr. Hanson was calling a few minutes ago the administrative review. That is an annual process, it seems to me it is properly an annual process, to bring to this Consultative Group each year some assurance that the actual operations of each center we are concerned about are being conducted efficiently, that there are no obvious, no serious wasteful practices under way, that we are in some -- we can assure ourselves and our respective superiors that the money we are talking about is being used effectively.

This process, as this staff paper notes, has only begun. None of us would be, starting with the secretariat, none of us is as yet satisfied that that work is yet being done nearly well enough. And it requires the development of the

equivalent of what is called in the United States Government budget examination practices and tactics and training and staffing and so on. And the secretariat presumably has that job in its sights and will move on in that direction.

The second point which I think Mr. Bernstein has very usefully directed our attention to is that all of us feel the lack of something beyond the annual budget or administrative review. We need something that gives us a much better presentation, a much better set of data than we now have before us which looks ahead two or three or more years. Mr. Bernstein poses the question in terms of ceilings. We have looked at it a little more broadly, and with the chairman's permission, I would like to ask Dr. Hill, who has on our behalf been struggling with the same set of issues, if you would permit him, if he would just present our thoughts on this same issue which I think is extremely important.

MR. DEMUTH: Thank you.

DR. HILL: Thank you, Mr. Chairman.

It seems to me this whole business of planning ahead in connection with the financing, not only of the individual centers, but of the work of the Consultative Group as well, is a matter of major importance.

With respect to the centers, if one could look at

this matter, or think of Mr. Bernstein's presentation here in terms of the beginning of a concept of a 3-year rolling budget, then to me this would begin to give the centers as much assurance as can be given by a group of this sort as to what they could look forward to, recognizing that when one is using public funds to make grants, you always have to put in the hudge of subject to the availability of funds.

But I would like to look at this, would hope we could look at this, not so much as a matter of ceilings or constraints that would operate in this fashion, but perhaps as a 3-year forward planning arrangement in which we would discuss, not only what the centers thought they could do, or what they thought it would take to operate their programs, but as much assurance as one could give, recognizing that the Consultative Group also is going to have to do some guessing. But I think this is fair; if the centers are going to have to guess what their costs are going to be and what they are going to turn out, then it seems to me that we could at least go so far, I would hope, as to express hopes as to what are the people who are responsible for making the grants thinking about in terms of their own program thoughts, assuming that they don't get caught short with appropriations and all the rest of it.

It seems to me this is suggested to a degree in Mr.

Bernstein's paper when he talks in the second or third paragraph from the bottom about availabilities of funds as well as the other side of the picture.

I think there is one other matter of great importance. This subject, Mr. Bernstein's comments, dealt primarily with one aspect, it seems to me, the availability problem. And that's the use of funds in established centers. But there is a second question of how many centers we are going to have ultimately and who is going to be interested in financing them. And it seems to me this gets down, as I understand it, to something more than just adding up the prospects for funds over the next two or three years and the prospects for the number of centers and their estimates of needs, because, as I understand it, the individual members of the Consultative Group decide individually what centers they are going to support and how much money they are going to put in. And it would be possible, it seems to me, to add up your figures and say, yes, there is enough money available simply because on one side you have got X dollars that represent your best guess as to what is forthcoming, and on the other side your best guess as to what your costs are going to be. But when the chips are down, you find that donor A, B, and C is not interested in financing centers X, Y, Z, or other kinds of programs.

So I think there is a second problem here that needs to be dealt with by the Consultative Group on an overall basis.

And to go back to Mr. Bernstein's proposal, the effect of this, of course, would be to rule out in effect additional funds for staff or for equipment or for buildings during the 3-year period, even though a center might be able to make a good case for it, even though it might not be able to shift resources to finance the needed staff, at least as it sees it, and even though there is a CT donor that's got money in his pocket that he is ready to put in that center but not put somewhere else. I just raise that as, it seems to me, a possibility.

But leaving that one out, it seems to me there is a whole complexity of problems here that need to be looked at in one package by somebody. And as I see it, it affects the centers, and it affects the Consultative Group, and there needs to be some discussion and talk back and forth and thrashing this one out as was done in the case of a reporting, the thing Mr. Ruddy was working on, without taking any hard position one way or the other. But I am just throwing out two or three more problems, as I see it, and suggesting that the Group take a look at the whole barrel of snakes while they are at it

instead of one snake at a time.

(Laughter.)

MR. DEMUTH: Dr. Hill, as I guess the very existence of the centers indicate, you usually are one jump ahead of us.

The second point that you have mentioned, which is in terms of forward planning for not only existing centers, but for new enterprises we might endorse, is something that I think we are going to begin to discuss tomorrow in terms of the priorities paper that Sir John Crawford is going to introduce to us. And I would not like to discuss that whole issue, how we forward plan the activities of the Consultative Group in terms both of existing centers and of new activities that we might undertake in the absence of the Technical Advisory Committee, which I think is very much involved.

I think the point that is before us now is a somewhat narrower point which is the annual progress and performance reviews, which is an input into our general consideration of how we move ahead and in what direction.

Dr. Bernstein and then Mr. Mathieson.

DR. BERNSTEIN: Well, without getting into the discussion, as you suggested, Mr. Chairman, I think the concept of rolling budgets is a very desirable one. But I think it doesn't fully meet the kind of need that we are attempting to

address with the notion of some type of budget ceiling.

The need there, and this was discussed at some length, I think, in a prior meeting here, is to provide a capability for all parties concerned -- centers, donors, this collective group -- to plan within given budget constraints, because we have constraints, and we can estimate them and anticipate them. And if we don't do this knowingly in a more systematic way, there are a lot of bad things that happen. You end up with your monies, for one unforeseen reason or another, in a place where you don't want them, you end up on lower priorities rather than higher priorities, you end up with undue program spread of various kinds which we have all said we are trying to avoid. And also it seems to me this is not only helpful, but really necessary in order to achieve another purpose to which Dr. Hill referred, that is, to be able to move when needed on new initiatives, whether they are new centers or new initiatives in old centers, because unless we establish some sort of budget limits on the ongoing programs, you never will know how much money is available to look at new initiatives. And it will tend to get eroded in various ways so when you most need it, it isn't there.

Now, just a question of interpretation. I certainly had no notion that asking for this estimating over a two-year

period would involve any rigidity in the freedom either of the centers to propose additional programs during that period or for any donor of the Consultative Group to respond. The general caveat intended was the one I mentioned which would apply each year at any time, that is, the estimated limits would be based on stabilization of each center's program on a specified set of major program goals and would be subject to adjustments for rising prices, and, I suppose I should have said, for other financial factors outside the control of the centers, such as exchange rate changes, and so on, and for the cost of additional activities undertaken with the endorsement of the Consultative Group. I think that would apply at any point of time.

I do agree that this is a complicated and very basic question in terms of the future of this Group in that it might be desirable, as was suggested, to have some kind of a forum in which it could be thrashed out perhaps at greater length and more detail than may be feasible here.

MR. DEMUTH: Thank you, Dr. Bernstein.

Mr. Mathieson.

MR. MATHIESON: Thank you, Mr. Chairman.

I suspect from the trend of the discussion so far that what I want to say on this item will command a minimal

agreement.

(Laughter.)

I also say it with undiminished respect for Mr. Evans and Dr. Dion. In my view the reports which we have had this year have had really no recognizable utility. I think the centers are suffering, or liable to suffer, rather heavily from over review.

What do we have already? We have inevitably, when a Director is preparing a program, preparing a presentation of an ongoing program for further budgetary period, he and his senior staff review their program within the institute and call for suggestions, reports, comments, from the scientific workers who are there.

And then many of the centers under their Boards of Trustees have a program review committee which reports to the Board of Trustees.

Then, of course, you have the Board of Trustees who also conduct an annual review, both of program and of budget.

And then there is this proposal which I think is still endorsed by the Group which is referred to in paragraph 14 of the secretariat paper, the review of reviews. It says every 3 years or so, 3 to 5 years, there be an in-depth examination of the scientific programs of the institutes by

an expert panel.

We have also instituted a system of annual reviews through the secretariat of the Consultative Group. And frankly, the reports which we have had this year gave me, at least, no information or suggestion which was not already available in documentation produced by the centers themselves in their annual reports in and in their budget presentations, but perhaps for the note on the IITA program of having to look perhaps at this forage business in the program.

Now, they are admirably brief, succinct presentations in different prose of the material which is already, to my mind, readily available to us. Now, if this not a totally unfair criticism, then should we not think, as Dr. Hanson said, that we should have another look at the terms of reference of these teams. If they are to be a continuing institutional feature, then I think they should do something rather different from what they have done so far.

From the paper which we have from the secretariat, it seems to me that in paragraphs 7 and 8 there is a contradiction in terms, the terms of reference of the review teams. It said with respect of program, the report would not seek to evaluate the suitability of the program or to recommend changes. But then in the next paragraph it says on budgetary

matters that reviewers should pay particular attention to the cost effectiveness of the center's activities. Now, what do we mean by cost effectiveness? Do we mean results from money spent?

In examining the concept of cost effectiveness, the review team itself, the secretariat paper, I think, in paragraph 18, says the meagerness of comment on cost effectiveness seems basically to have been due to the intrinsic difficulty of the subject. And again in paragraph, I think it is paragraph 40 -- no, in paragraph 11, it says .. offers some judgment though necessarily not in quantitative terms of the benefits that may be expected.

I don't see how one can really carry out any form of cost effective review of what the centers are going or propose to do unless you are evaluating the suitability of the program. Is this level of expenditure liable to produce certain valuable results?

To my mind, it seems very difficult to separate purely budgetary operations, the operation Mr. Bell was referring to, all right if you are going to employ 15 scientists in certain grades, do you really have to spend all that amount of money to get their services and the supporting services they need? That is one thing. But to go further in

a cost effective appraisal, is it worthwhile to spend this volume of money on these objectives, you cannot do that without taking a critical view of the objectives of the programs and the measures proposed for pursuing these objectives.

So I do think that there is a good deal more thinking required on the purpose, objectives, and terms of reference of a review of this kind, if indeed such a review is required. And I say that from my point of view, as people who have got to decide whether they are going to commit money to something. We would find the material which we have presented to us in the documents produced by the centers themselves, supplemented perhaps by the in-depth scientific external audit at a reasonable periodicity totally adequate for our purpose.

MR. DEMUTH: Dr. Bernstein and then Mr. Wortman.

DR. BERNSTEIN: Mr. Chairman, I think we may have a semantic problem here, however, which has some important substance behind it. Different people use different terms in different ways.

We would tend to refer what I thought the paper was referring to as cost efficiency, to try to distinguish the two points that Mr. Mathieson distinguished, that is, whether resources are being used efficiently for a given purpose as distinguished from the results achieved in relation to the cost

put into it. And, of course, they are both important, and the latter ultimately is the most important certainly in judging the effectiveness of our investment in the centers.

I am not sure about all the distinctions between a parliamentary system of government and our own, but I think that it is very important to us to be able to demonstrate cost efficiency when we are defending requests for funds as well as the question of the ultimate impact, even though we would agree fully that the latter is the basic thing that we are concerned with.

I thought the sense here and of our discussion last year was that one or two people visiting for a week are not in a very good position to judge effectiveness, and that, however, they can, if they are astute, able observers, observe in independent fashion, that is independent from the people responsible for managing the funds at the center, they can observe how the program does relate to the materials that have been presented for funding budgets and the justifications. And a brief description of that, that relationship, not of the program, I thoroughly agree with the ability to dispense with redescribing the program, but a description of that relationship, we would find very helpful.

But beyond that, I know of no other way that you can

get a separate look at this cost efficiency question, and I think our ability to mobilize continuing support in funding very much depends on that. Because if there are independent audits which turn up the fact that there have been some inefficiencies and there was no procedure established to try to investigate that possibility independently, we run the risk of losing support. So that, although it might seem a more limited concern, it is extremely important to us to maintaining our total support.

Thank you.

MR. DEMUTH: Thank you.

I must say that from the secretariat's standpoint, we had interpreted our mandate in a narrower sense in which you have described it rather than the broader sense that Mr. Mathieson has described it.

Dr. Wortman, and then after that I would like to give an opportunity to Mr. Evans and Dr. Dion if they want to say anything to perhaps join this dialogue.

DR. WORTMAN: Thank you, Mr. Chairman.

It seems to me that it might be useful for us to think in terms of long-term programs of reviews at the centers. I know -- I believe it was about a year ago in the case of CIMMYT, we attempted to take a look at the reviews which had

been scheduled for the next four or five years, looking at the scheduling, for example, of specific reviews, in that case for wheat and for maize, scheduling those, scheduling the period for the next external review, scheduling a time for an administrative review, and so forth. It would seem to me that perhaps a more appropriate way to approach the general question of reviews would be for the secretariat, those who are doing the reviews, to look at the system of reviews which have been proposed by the centers for the next four or five years, and then to schedule such supplementary visits -- in other words, rather than to get into regular visits every two years, such that on a particular year you might have the CG two-man team there shortly after you had had a full-blown external review, in other words, they could look at the system of reviews and identify those particular periods when from the standpoint of the Consultative Group, the TAC, and the centers themselves, it would be appropriate for there to be a special review by the secretariat.

It also seems to me that because there are increasingly number of specific special reviews which are being scheduled, that the secretariat would wish to be represented at these special occasions, such as the review of the maize program, for example, which is scheduled for next January and doesn't

appear in Annex B at all, and yet it would seem to me it would be important to the Consultative Group to have its team there.

At any rate, Mr. Chairman, I was suggesting that the secretariat might wish to look at a longer term, perhaps rolling, scheduling of reviews of the various types and then to be able to present to the Consultative Group and to TAC the schedule of reviews which have been proposed to ask if that would in fact meet their needs to keep the various groups adequately informed and yet keep the number of reviews and the scheduling of them to an appropriate level.

It would also, it would seem to me, facilitate the scheduling of many of us who would like to attend functions of the various centers if we knew sometime in advance just when they are proposing to have them. We find ourselves surprised occasionally with learning of an event which has been scheduled by a center and then finding ourselves already committed to something else at that time period. So I would suggest, Mr. Chairman, the possibility of a look at a long-term system of reviews by a center.

MR. DEMUTH: If I can just make one comment on that, I think these reviews of the maize program and rice program are the essential reviews of the programs of these centers. They are done by the people who are the experts in the field,

and they are going to be the reviewers who advise the Boards of Trustees, the Directors, and the TAC and the Consultative Group whether the centers have the right emphasis, whether there are things that have gone to the point of diminishing returns and ought to be cut off, and perhaps new activities added.

That is, I think, why last year we, as a group, decided that we would recommend to all the centers that they arrange to have periodic external reviews of that type for their programs.

The particular reviews we are talking about here are much narrower, have a much narrower focus, and in a sense, are less important, except to the extent that they may be important to get financial support. And that is a review to certify to members of the Consultative Group that the program which they approved and which they funded is in fact being carried out or not being carried out, that is being carried out within the budget that was approved or not within that budget, and it's being carried out efficiently or inefficiently.

I am not sure that the reviews this year came across that way, but as I understand it, that was the purpose of the reviews. And it's a complement to the more important reviews about which you have been speaking.

I think Mr. Mashler wanted to say --

Dr. Yriart, and then I want to call on Mr. Evans and Dr. Dion.

MR. YRIART: Very briefly, sir. I hope it's a contribution. It's a bureaucratic contribution.

I have been getting a little confused trying to put order in my understanding of what is being discussed. I come up in our UN bureaucratic language to three concepts that are being mixed up a little bit, I think. I think we have been talking about what we would call monitoring, we have been talking about evaluation, and we have been talking about medium-term planning and sort of confusing them all.

I would wonder what you need it for. You have given some reasons now.

Monitoring, essentially you need to control and make sure you don't depart from your objectives. Now, do you in this height of your operations need to control closely the centers, either for budgetary reasons or to make sure that they don't depart from objectives? If you don't need it, it is expensive.

What is it that you need? You need to fix priorities. That you do. That would be a combination perhaps of evaluation and medium-term planning.

But above all, it seems that your first priority is fund gathering to make sure that governments in allotting resources are doing so to causes that they think are worthwhile. So you would have then two priorities: either what is more important at the present time, that you establish for governments a case, or that you fix priorities, and that is medium term planning.

I think if you could probably divide these things, you would come up with reasonable procedures for what you have to do.

MR. DEMUTH: You may need both, Dr. Yriart. And I think the program that we agreed on last year would provide both.

MR. YRIART: I see.

MR. BELL: The point I think that Dr. Bernstein and that we have been pushing toward is very well underlined by Dr. Yriart's comment. We do not feel that the medium-term planning process is nearly good enough yet. We think that the monitoring process is not bad, although it has got a lot of evolution still to come. The evaluation process really hasn't started yet, except insofar as it was already going on in the centers before this Consultative Group entered the picture.

But the medium-term planning process is very ineffective at the present stage. This is not a criticism of anybody, this is imply a report on how far along we are in our business. And we urge that attention be paid to it. Joel puts it in terms of the development of ceilings. We prefer to use other terminology, but we are driving at the precisely the same thing, namely, that we need some sort of approximately 3-year forward program planning and financial planning which can give us all a much firmer sense of where we are and where we are going, the centers, the donors, the secretariat, than we have to date.

Now, I don't urge that we try to settle this around the table today, but I do urge that it is unfinished business, and perhaps somehow we ought to assign either to the staff of the secretariat or maybe even to some subcommittee of this Group, or a special group created for the purpose, the task of designing a way to respond to this need that we feel isn't yet being met. Perhaps it could be done -- something useful could be done between now and ^{the} November meeting which would enable us to look at the question again in a much more orderly fashion and with appropriate staff or appropriate paper before us, so that -- I did not want to accept your comment that we have got all of this in our sights. I think that piece of the

thing is not yet sufficiently in our sights.

MR. DEMUTH: Thank you.

Dr. Yriart.

MR. YRIART: Just a word of warning because for four years now in FAO we have been trying to do medium-term planning, and we have tried it seriously. It is very difficult to do medium-term planning. But medium-term planning with a cost tag added to us so far in the present situation of monetary instability, of inflation, and considering the operation, the type of operation that we have which are very similar to those of the centers, we have not discovered the formula yet.

So if you are going to face this sort of thing, I would say that in the terms of reference to whomsoever you put to think on these, bear in mind that to put a tag nowadays to medium-term -- a price tag to medium-term planning, is very difficult indeed.

MR. DEMUTH: Mr. Yudelman.

MR. YUDELMAN: I would like to make one comment. That is that the President of the Bank shares the views that Mr. Bell has expressed. The only difference is he has talked in terms of a 5-year program.

Thank you.

MR. DEMUTH: I would like to call on Mr. Evans at this point. I told him I was going to call on him.

MR. EVANS: Thank you very much, Mr. Chairman, for giving me the opportunity. I have listened with great interest and some enjoyment, I may say, to the discussion of this.

Dr. Hanson was kind enough to tell me of the discussions he had with his co-directors, and in fact discussed with me last night a first draft of the conclusions. I find myself very much in agreement with his proposals for improving the utility of the reviews, and if it is the decision to continue with reviews of this kind, I believe that nearly all his proposals would be workable and deserve serious consideration.

I may say that Mr. Mathieson was also courteous enough to indicate to me that he was going to refer this afternoon to the total inutility of the reports done by Evans and Dion this year. And I fully understand why, from his point of view, they did not give him what he wanted.

I think I would just like to comment on a few points, Mr. Chairman, of a rather wide subject. First of all, there clearly is a need for more consideration about terms of reference. The reports this year were descriptive, not entirely descriptive, I think there was perhaps a little bit more to them than that if they were carefully read, but they were

certainly descriptive. And if you look at the terms of reference you will see the first page is asking the people in four places to describe this and describe that, and on the second page again it is really a call for description.

Also, there is some reference to analysis, but not very much. And I believe it is possible greatly to improve the terms of reference to make them more significant and to reflect more closely what is wanted.

I might just refer to the fact that what is wanted may be wanted by three separate groups of people. The reports have apparently been read by TAC. I am not quite sure what their consensus is. We have heard some comments that the reports were useful. Perhaps we may hear more tomorrow.

The work of these review teams may also be of some use to center directors. I believe that in some ways they have been. And it is clear this afternoon that the Consultative Group donors also have requirements from these reviews.

I don't think it would be too difficult if we had a small terms of reference committee on which there would be representation of Directors and donors, possibly a TAC man, with the secretariat, to get terms of reference which would lead to greatly improved reports next year.

It is a pity that this year there is very inadequate

treatment of the relationship of programs to expenditures. Had it been more specifically asked for, there might have been more in these reports. I am not sure that there would have been. But, Mr. Chairman, I don't believe this is necessarily due to the intrinsic difficulty of the subject. There is a reference to that in the secretariat's paper. I think it's due this year to two reasons: First, that it wasn't clearly enough asked for or specified what was wanted; secondly, I don't believe that the center Directors were ready for it. If this is wanted and if center Directors know what is wanted, it would be perfectly possible to provide, I think, the kind of information which it is indicated that donors would like to have.

It is perfectly possible also to quantify the relationship between programs and expenditures, and there is a whole range of possibilities here that are very sophisticated economic processes for relating investment in research to benefits. Some of these are so sophisticated that they are almost useless. But without going as far as that, I believe it is possible to introduce quite a large amount of quantification into it, and reports would certainly be, I believe, more useful if that was to be done. I think it can be done.

I entirely agree that it is better to have two

reviewers than one. And I think that the timing is one of the most difficult things to resolve. This year the timing was extremely difficult. But some of the suggestions made by Dr. Hanson, I think, would go some way to relieving that.

Lastly, Mr. Chairman, I do think that in considering what kind of report you want, it is important that you get some continuity married with some new look each time you have a review. You also may possibly want to have some kind of standardization of approach because if you merely employed different consultants each year, you will get very varied kinds of reports which would be quite hard to digest.

Thank you, Mr. Chairman.

MR. DEMUTH: Thank you very much, Mr. Evans.

Dr. Dion, do you want to add to that?

DR. DION: Thank you, Mr. Chairman.

I have been very interested in the debate, and I must say I have a great deal of sympathy for all of the difficulties that have been discussed. If I were to choose a point of view that I wish to support, I think I would support Mr. Mathieson's.

(Laughter.)

I think the fundamental question that has to be addressed to this group is whether or not there should be an

annual review and what its function is. I think there is no question that we need to look at the various functions that Dr. Yriart discussed. I think the question of medium-term planning in my mind is very easy and very straightforward, should not be done by appointees of the secretariat of the Consultative Group. It is the primary responsibility of the institutes themselves and their Board of Trustees. If anybody else intervenes in this process, I think we are in grave danger of destroying the functions of the Board of Trustees, destroying the autonomous independence of the institutes which is one of their chief virtues.

DR. BELL: Point of correction, Mr. Chairman. I am talking about medium-term planning for the Consultative Group, not for the institutes. Quite different.

DR. DION: I am not sure I recognize the difference, Dr. Bell, but there may be one.

DR. BERNSTEIN: There is an important difference in one respect, if I may, Mr. Chairman. It would be, I think, too much to expect the management of a particular center to concern itself with the allocation and reservation of resources from some kind of total availability for purposes of other centers existing or which might sometime exist in the future. This is a function of this Group, and I can't see how it would

be possible for the management of individual centers to deal with that. Our problem is to reconcile that in the procedure which does not interfere with the integrity of the management of the individual centers, which I think is a possible thing to do.

MR. DEMUTH: Thank you, Dr. Bernstein.

DR. DION: I recognize that point. I think it is a slightly different point than the point of setting ceilings for individual institutes and maximum budgets, and this kind of thing, which I still feel very strongly are the prerogative of the Board of Trustees.

I think it is very important for us to recognize that what we are dealing with is a very sensitive type of plant. I feel very strongly, as we all do, in the importance of the international institutes. I think they are experimental organisms which the foundations began and they have flowered with tremendous success. I think we have to be very careful how we nurture them since their care has been partially transferred to our hands.

I think there is the problem that Dr. Bernstein refers to, future planning for other operations. But I think that the individual operations of the institutes should not be interfered with nor should the Consultative Group interfere

in the relationships between individual institutes and individual donors. I think that is a very private and personal relationship.

With regard to the monitoring function and the question of cost efficiency, I think these kinds of questions are very important. I don't think they can be dealt with in any way by a team of one or two visitors on an annual basis. I think that is completely impossible and unrealistic. That has to be done, in my view, by a team of specialists in the narrow area that is being examined which can relate the technical promise of the program to the benefits that are obvious.

I think Dr. Yriart struck a responsive note in me when he indicated that he thought one of the important functions was in fact fund raising and that the annual review was to be some kind of a link in fairly comprehensible language between the institutes and the political entities that are liable to be supporting it.

I think I have one virtue as a reviewer. I think I am competent to recognize a good thing when I see it. And I have concentrated on that.

The question of pointing out inefficiencies, I think is a very different thing, and that I would say I am completely incapable of recognizing since I recognize that we are dealing

with some of the world's best people in the areas in which they are operating, directed by the best people that can be found on the face of the earth to direct these institutes. It would be arrogant of me to point out how much better they can do their work than they are doing it. And I would not be a party to that kind of operation.

I think in view of this, I would strongly support Mr. Mathieson's proposal that we recognize that we are dealing with the best people that can be obtained to do these functions for us, and that we should rely on the progress reports that they prepare. I think there are individual problems of progress reports that individual donors may have, and I think it is the responsibility for individual institutes to supply the individual needs of their individual donors. I don't think these are general problems that have to be widespread over all of the institutes for all of the potential donors.

I think if I were to have one word of warning to the Consultative Group, I think it is to say that there is some degree of apprehension in the institutes with regard to the function of the Consultative Group. And I think we have to examine what our particular role is, whether we are in fact a Consultative Group which comes together to discuss international research on a basis of common interest, but recognizing our

individual enthusiasms and the right of individual agencies to pick and choose among the possibilities. I think it is very hazardous for us as a group, Consultative Group, which consults together to take definitive action and to act as a consortium, a management consortium, rather than a Consultative Group.

From this point of view, I have, as you will appreciate, considerable sympathy for Mr. Mathieson's point of view. I think the basic question is whether or not these annual reviews should be conducted. If they are conducted, for what specific purpose?

Thank you very much.

MR. DEMUTH: Thank you, Dr. Dion.

It is getting late, and I think we are going to have to call a halt to this meeting this afternoon. So we will keep the item on the agenda for discussion first thing tomorrow.

I do want to make this suggestion before we adjourn. I am convinced by this discussion -- and incidentally, it is the discussion of the same series of issues intertwined that we had last year and which I think was the most difficult discussion we have had since the Consultative Group was created.

There are a lot of different issues here. I think

there is no doubt, and I want to say this because I don't want to leave, close the meeting on the note that Dr. Dion sounded about a management consortium. The one thing that the Consultative Group, in my view, has been very, very careful about is not to interfere with the management of these centers. I think there is unanimity of view on that on the part of everybody around the table.

About other aspects of this review process, I see no unanimity of review. I think we are talking about three different processes, as you pointed out, Dr. Yriart, and I think we are talking about some donor governments and agencies that have certain requirements for monitoring and others that don't feel the same requirements in order to continue to provide their financial support.

Because of these intertwined issues and the many differing views, I am personally very much taken by Dr. Bell's suggestion of a subcommittee that could meet -- and I want to say to you now that it is my intention tomorrow, after we conclude this discussion, to put that suggestion to the Group for their views, and I would like to have you think about it overnight.

I would also like to ask the Directors when they meet tomorrow to discuss specifically Dr. Bernstein's suggestion of some sort of notional ceiling for a 3-year period and to express their views on that to us, presumably when they come

back on Friday morning, because this item is going to have to be put on the agenda again in November, hopefully if we agree on a subcommittee with the benefit of recommendations from the subcommittee, and the Directors' views would be a very interesting and important input into the subcommittee's consideration.

Dr. Boon-Long, is there something you want to say tonight?

DR. BOON-LONG: Yes, may I take just one minute to give food for thought for the Group?

What I have been thinking that we are having consideration from two points of view, from the developing countries standpoint. One is that if the center picks up a problem, whether it is going to develop into the size of elephant or the size of a car key, and one point of view is that if we give something as food for it to develop into the size of a car key, it would be just as useful to the developing countries as one which developed to the size of an elephant. And I would like to express this view that in terms of developing countries trying to adapt and learn ways of research from this institute, there is a way that we like to develop is that the cheapest way possible. Institutes and international centers which have available funds may tend to go in for very