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CGIAR: Bellagio Group Meetings - Correspondence

Baird

INFORMATION

AA/TA, Joel Bernstein

July 6, 1973

TA/AGR, Omer J. Kelley

"Bellagio Group" Meeting Held in New York City - December 3 - 4, 1970

I have looked through my notes on the meeting indicated above and while they are only pencilled and were never written up as official, they do contain information on the following points:

1. There was general agreement with Mr. McNamara's statement that the "present" four Institutes do not have sufficient funds for the future and that there is a need for ~~much~~ more agriculture research either at present institutes or new institutes, or both.
2. Dave Bell indicated a difficulty in finding talent for new institutes and thought that two or three more would probably be about all that one could find talent for. He further indicated that the Ford Foundation would probably hold their contribution to what it was at that time (\$3 million). He further indicated that the present Institutes should be fully funded before new institutes were started. There was an indication that each Institute, when fully funded, might run as much as \$5 million. McNamara indicated "\$20 million is peanuts. The world is wasting time and resources by not funding agriculture research."
3. Dr. Hannah indicated agreement with the above comments and stated that we needed at least the next two institutes we are talking about rather soon. He stated the secret to date has been the Foundation's management and the freedom of the Institutes to operate without outside interference. He suggested no country should participate above 25% of the cost and it would be better off if the U.S. part could be lessened but did reemphasize the U.S. willingness to contribute up to 25% of capital and operating costs, providing the other money was available and management was as good as previous management for the present four Institutes.

Ralph Melville of the U.K. and Paul Hoffman of the UNDP all indicated an interest and a willingness to contribute in the future. Mr. McNamara indicated as a matter of last resort, the Bank should be able to fund up to 25%.

4. Someone asked the question as to how many institutes there should be. George Harrar indicated four is much too few; 40 would be equally bad as too many.
5. While I do not have in my notes any reference to this, there was a general consensus that if four or five more institutes were added, the total cost could easily run to \$50 million annually. But this did not seem to cause too much concern. Only the Ford and Rockefeller Foundations indicated their future contribution would be held close to their then present contributions.

*Howard - University might be interested
in these papers as part of
to annual agric activities for
Africa.*

JAN 26 1971

INFORMATION MEMORANDUM FOR THE ACCELERATOR

TO: ELSEC

FROM: AA/TA, Joel Bernstein *JNB*

SUBJECT: World Bank Meeting on International Agricultural Research

The meeting convened by the World Bank January 14-15 accomplished its objective: with only the French and Germans resisting, it was decided to establish a Consultative Group would organize and coordinate long-term financial support for the international institutes of agricultural research, and consider additional measures for strengthening the international research network. Agreement was also reached on the proposal to establish a Technical Advisory Committee, under the aegis of the FAO, to serve the Consultative Group and recommend measures for its consideration. The first regular meeting of the Consultative Group will be held within the next three to four months.

The several points in the Guidelines paper you approved for the meeting were well received. There was general agreement that the ultimate test of the international research system would be its effectiveness in getting superior research results into production; that the design of research projects should take this objective fully into account; and that the strengthening of the research capabilities of the developing countries was essential. It was also agreed that research on production had to be complemented by consideration of the economic and social consequences of the introduction of new agricultural technology.

The meeting was not intended as a pledging session, and no effort was made to elicit commitments of financial support. Nevertheless, in addition to the A.I.D. offer authorized in the Guidelines paper, several commitments were made. The most noteworthy of these was the United Kingdom offer to contribute \$1 million in 1972 and to increase the amount by annual increments of \$1 million to an ultimate level of \$5 million.

The briefing material for the meeting included the proposed new initiatives favorably considered at Bellagio IV and Mr. Bell of the Ford Foundation referred to them in the course of one of his interventions. However, the meeting was concerned with questions of principle and organization, and these proposals were not discussed. They will presumably be referred to the Technical Advisory Committee for further refinement.

A summary of significant points developed in the course of the meeting is attached. You may find the section "Degree of Support", page 1, and "Financial Requirements and Contributions", page 2, worth scanning.

Attachment a/s

TA/SSS, ABDaspit:paz. *SS*
25 January 1971

LEED - FAC - UNDP Meeting

on Long-Term Support for International Agricultural Research

This two-day meeting (January 14-15) convened to consider a proposal by the sponsors to establish a Consultative Group which would provide financial support for the international institutes of agricultural research (present and proposed). Attending the meeting were representatives of the DAC Secretariat, all DAC member countries, the Asian Development Bank, the African Development Bank, the Inter-American Development Bank and the Ford, Rockefeller and Kellogg Foundations. (Annex A lists the representatives at the meeting.)

Accomplishment

A positive decision was made to establish a Consultative Group, under the aegis of the World Bank, to be served by a Technical Advisory Committee with headquarters at FAC. Arrangements approved were substantially as proposed in Mr. McNamara's memorandum of November 19, 1970. It was agreed that the Consultative Group would hold its first regular meeting within the next three to four months. The minutes of last week's organizing meeting and a proposed agenda for the first formal meeting of the Consultative Group will be circulated by the Bank within the next few weeks.

Degree of Support

There was substantial support for the proposals under consideration. Although few delegates were in a position to state formally that their governments would participate in a Consultative Group, it was clear that most were favorably disposed. The three sponsoring organizations were, of course, all positive in their support, as were the Foundations, which had been seeking for some time to persuade others to share the financial burden of the institutes. The representatives of the Regional Banks were sympathetic but lacked authority to speak for their institutions. Judging by statements made at the meeting, the attitudes of the various countries toward active participation, including financial support, seemed to be as follows:

Positive

United States
Canada
United Kingdom
Netherlands
Switzerland
Denmark
Sweden
Norway
Finland
Japan

Negative

France
Germany

Unclear

Austria
Belgium
Italy
Australia
New Zealand

The French representative attempted to torpedo the enterprise at the outset. Speaking first, he suggested that any consideration of organizational arrangements should be deferred pending the completion of an inventory of all research bearing on the agricultural problems of the developing countries. Only then would it be possible to reach an informed judgment concerning what, if any, additional efforts were needed. The German position also ran true to form. They favored an exchange of information and views but opposed the establishment of any new institutional arrangement, particularly one which appeared to involve the commitment of German Government funds. The Australian representative, who also spoke for New Zealand, was very reserved but did not rule out the possibility of participation. The Austrian representative, whether by accident or design, succeeded in effectively concealing his views in the course of several interventions. The Belgian and Italian representatives remained completely silent throughout.

Financial Requirements and Contributions

Annex B presents the estimates of requirements of the existing and proposed centers prepared for the meeting by the Ford and Rockefeller Foundations, brought up to date to take account of the discussions of the African Research Centers in Rome January 9, 1971. After account is taken of support already pledged, the total uncovered requirements (capital plus operating expenses) reaches a maximum level of about \$22 million in 1974 and 1975. These estimates were not referred to during the course of the meeting and there was no discussion of the figures.

The representative of the United Kingdom volunteered that his government is prepared to make an initial contribution of \$1 million in 1972 and to increase it by annual increments of \$1 million to a level of \$5 million. The Netherlands promised \$250,000 a year. The President of CIDA indicated that his government was thinking in terms of a contribution of \$6 to \$7 million over the next five years. In addition to its already pledged contribution to IITA's core budget and capital costs, Canada plans to support special projects at CIBT and CIAT which would contribute to the core budgets of the institutes. Speaking for the new Canadian International Research Development Center (CIBDC) David Hopper said he was prepared to ask his Board to authorize a contribution of \$1.0 to \$1.5 million over the next five years. The U.S. representative stated the position approved by the Administrator January 5:

"A.I.D. is prepared in principle to provide up to 25% of the additional capital and future operating costs of the existing institutes and the two new institutes proposed, (up to a maximum total contribution of \$7 million in any one year) provided that the remaining 75% is forthcoming from other sources. Specific pledges would, of course, be for individual institutes subject to our review and approval of fully developed proposals for each and to the provision by the Congress of adequate funds. The U.S. is convinced that the success of existing institutes has depended in large

part on the effectiveness of the management supplied by the Foundations and our pledge is based on the assumption that additional institutes will be assured of management of comparable efficiency."

In reply to a pointed question from one of the representatives, spokesman for the Bank said that the Bank would contribute (but mentioned no sum); that this could be done by several different means; that the precise mechanism to be employed had not yet been determined.

No other representative mentioned the possibility of a financial contribution.

There was general agreement, without debate, on the proposition that individual contributors would transfer funds (or services) directly to those institutes they chose to support. The Bank representative stated that they had initially considered the possibility of establishing a common fund to which all participants would contribute but had decided that this arrangement was not now feasible.

Proposed New Initiatives

None of the new research ventures reviewed at meetings of the Bellagio Group was discussed. They were mentioned in passing, but the meeting was concerned with questions of organization and principle. They will doubtless be considered at an early meeting of the Consultative Group.

The "Network" Concept

There was solid support for the proposition that the ultimate objective of efforts in support of agricultural research was the creation of a research network, and that the strengthening of the research capabilities of the developing countries was essential to the effectiveness of the system. The President of the Rockefeller Foundation the FAO representative and several others made statements to this effect. No dissenting views were heard, and the terms of reference of the TAC were amended to make this point more explicit.

Membership in Consultative Group

The discussion of the proposal to establish a working group began, inevitably, with protests against the establishment of a new "organization." The Chairman brushed these objections aside with the observation that what was proposed was not an organization at all, but an arrangement for consultation. He said the Bank presided over a number of Consultative Groups for individual countries and did not consider that these groups were separate organizations. The proposed arrangement for agricultural research was, he thought, similar in many respects to the country Consultative Groups.

There was an inconclusive discussion of eligibility for membership in the Consultative Group. Should it be restricted to countries and organizations contributing directly to the support of international agricultural research or to aid donors in general? Should observers be permitted? The Chairman (Hirke Knapp, Vice President of the IBRD) indicated that aid donors in general would be welcome. The French representative did not think his Government would wish to be a regular member of the Group, but would probably request observer status. The Swedish representative argued the need for IDB participation in the Group, returning to this theme several times. Others pointed out the practical difficulties of implementing this proposal. The suggestion was made that the three regional development banks might serve as spokesmen for the IDBs, but the Banks' representatives rejected the idea. The Chairman finally finessed the question by proposing that the sponsoring agencies consult participants and submit recommendations on this subject to the first meeting of the Consultative Group.

Composition and Scope of Work of Technical Advisory Committee

There was some concern that the Technical Advisory Committee might focus too narrowly on questions of plant breeding and production. The consensus was that research must be broadly conceived; that research programs and projects must be designed in such a way as to facilitate the dissemination of their results to users; and that the research program should take adequate account of social and economic as well as technical factors. There was a more extended discussion of the composition and mandate of the Technical Advisory Committee than of the Consultative Group. The initial question was whether the committee would consist of government representatives of individuals chosen for their expertise. After a rather extended discussion it was decided that there should be a top level group of perhaps five to seven who serve as individuals rather than government representatives. These would be men of great eminence, presumably in touch with political and economic realities as well as agricultural science. Subordinate to this group would be a number of panels of technicians whose tasks would be essentially technical. The FAO undertook to hold preliminary discussions with prospective members of the Consultative Group and to place recommendations concerning the composition of the TAC and its subsidiary panels before the Consultative Group at its first meeting.

Research Data Bank

There was general agreement on the desirability of the FAO maintaining a data bank on agricultural research as proposed in the U.S. position paper. The FAO is ready and willing to undertake this task but pleads poverty, claiming that it will require \$900,000 additional to any resources now in sight to finance the project. This figure was not

discussed and it is uncertain whether they referred to the initial costs of establishing the system or to annual operating costs. The possibility of the UNDP financing the project was mentioned and it was agreed that the question would be discussed with Mr. Hoffman. This will no doubt be a subject for discussion at the first meeting of the Consultative Group.

LIST OF DELEGATES

1. African Development Bank (AFDB)

E.A.R. El Saeed, Agronomist

2. Asian Development Bank (ADB)

S.C. Hsieh, Director, Projects Department

3. Australia

R.L. Knight, Executive Director, IBRD

4. Austria

Viktor Wolf, Alternate Executive Director, IBRD

5. Belgium

Anne Dorze, Technical Assistant to Executive Director, IBRD

6. Canadian International Development Agency (CIDA)

Paul Gerin-la Joie, President

7. Canadian International Research Development Center (CIDRC)

W. David Hopper, President

8. Denmark

Erik Hauge, Economic Counselor, Embassy of Denmark, Washington, D. C.

9. Finland

Jaakko Illionemi, Chief of Bureau for Technical Assistance,
Ministry for Foreign Affairs, Helsinki

10. Food and Agriculture Organization (FAO)

P. Terver, Assistant Director General, Development Department
P. Oram, Assistant Director, Policy Advisory Bureau

11. Rock Foundation

David Bell, Vice President

12. France

J.P. Carriere, Alternate Executive Director, IREU

13. Germany

Helmut Koinzer, Ministerialrat, Ministry of Economics

14. Inter-American Development Bank (IDB)

Alfred C. Woll, Program Advisor to the President

15. Italy

Giorgio Rota, Executive Director, IREU

16. Japan

Dr. Noboru Yamada, Director, Tropical Agricultural Research Center,
Ministry of Agriculture and Forestry

17. Kellogg Foundation

R.C. Fahs, Program Director

18. Netherlands

J. Grooters, Financial Counselor, Embassy of the Netherlands,
Washington, D. C.

19. Norway

Prof. G. Laag, Faculty of Agriculture, University Oslo

20. Organization for Economic Cooperation and Development (OECD)

Francis Wells, Chief of the Economic Development Division of the
Development Directorate

21. Rockefeller Foundation

George Harrar, President
Sterling Wortman, Vice President

22. Sweden

H. Granquist, Head of Section, Ministry of Foreign Affairs, Stockholm

23. Switzerland

R. Lompen, Financial Counselor, Embassy of Switzerland, Washington, D.C.

24. United Kingdom

W.A.C. Mathieson, C.B., CMG, MBE, Deputy Secretary, CIDA

25. United Nations Development Program (UNDP)

David Morse, Senior Consultant to the Administrator

26. United States

Joel D. Bernstein, Assistant Administrator, Bureau of Technical Assistance, A.I.D.

27. World Bank Group

J. Burke Knapp, Vice President
Pickard H. Demuth, Director, Development Services Department

APPENDIX TABLE I

ESTIMATED REQUIREMENTS OF EXISTING INTERNATIONAL AGRICULTURAL RESEARCH AND TRAINING CENTERS FOR CAPITAL AND OPERATING FUNDS, 1971-1976, AND FUNDS IN PROSPECT AS OF OCTOBER 1, 1970

Item	1971	1972	1973	1974	1975
Millions of dollars					
<u>Capital Funds</u> (Required in addition to amounts committed)					
IRRI	\$ 0.3	\$ 0.3	\$ -	\$ -	\$ -
CIMMYT	0.5	0.3	-	-	-
ITA	-	0.8	-	-	-
CIAT	0.2	0.1	-	-	-
Total	\$ 1.0	\$ 1.5	-	-	-
<u>Operating Funds</u> Required					
IRRI	2.2	2.4	2.4	2.6	2.8
CIMMYT	3.2	3.2	3.6	3.8	4.2
ITA	2.2	3.0	3.5	4.0	4.2
CIAT	2.2	3.0	4.1	4.6	5.0
Total	\$ 9.8	\$11.6	\$13.6	\$15.0	\$16.2
<u>Operating Funds in Prospect as of October 1, 1970</u> ^{1/}					
Rockefeller Foundation	2.7	3.0	3.0	3.0	3.0
Ford Foundation	2.7	3.0	3.0	3.0	3.0
Kellogg Foundation	0.3	0.2	0.2	0.2	0.2
USAID	2.9	3.0	3.0	3.0	3.0
CIDA ^{2/}	0.5	0.7	0.7	0.7	0.7
Other	0.1	0.1	0.2	0.2	0.2
Total	\$ 9.2	\$10.0	\$10.1	\$10.1	\$10.1

^{1/} No additional capital funds were in prospect as of October 1, 1970. See explanatory notes at end of Appendix for definition of "funds in prospect."

^{2/} Canadian International Development Agency

APPENDIX TABLE II

ESTIMATED REQUIREMENTS OF FUNDING NEW INTERNATIONAL AGRICULTURAL RESEARCH AND TRAINING PROGRAMS FOR CAPITAL FUNDS, 1970-1975

Item	Estimated Capital Requirements
	Millions of dollars
<u>New Centers or Programs</u>	
Upland crops center in Asia	\$10 - \$12
Animal disease laboratory in Africa	3 - 5
Livestock production center in Africa	7 - 9
Agricultural policy management program	<u>1/</u>
<u>Additional Activities at Four Existing Centers</u>	
IRRI for work on upland crops)	
ITA for work on food legumes)	2 - 4
CIAT for work on food legumes)	
Total	<u>\$22 - \$30</u>
<u>Estimated Requirements by Years</u> ^{2/}	
1971	\$ 0 - 0
1972	3 - 5
1973	7 - 9
1974	8 - 10
1975	<u>4 - 6</u>
Total	<u>\$22 - \$30</u>

It is assumed that an agricultural policy management program would be housed in rented quarters and that the investment in equipment, furnishings and other capital items would not be large.

End points of these ranges were used as estimates for capital fund requirements for

APPENDIX TABLE 1

ESTIMATED REQUIREMENTS OF POSSIBLE NEW INTERNATIONAL AGRICULTURAL RESEARCH AND TRAINING PROGRAMS FOR OPERATING FUNDS, 1971-1975

	1971	1972	1973	1974	1975
		</			

May 25, 1971

INFORMATION MEMORANDUM FOR THE ADMINISTRATOR

THRU: FMSEC

FROM: AA/TA, Joel Bernstein *JB*

SUBJECT: Consultative Group on International Agricultural Research

The first meeting of the new Consultative Group -- jointly sponsored by the IBRD, FAO and UNDP -- was May 19 and went well.

The main developments were:

- 16 countries and organizations became members, and 10 are observers or are still considering whether to become members (See list in Appendix A); several are expected to do so;
- a formula was worked out for developing country participation in the Consultative Group, in addition to major involvement of LDC experts in the technical Advisory Group structure; the five FAO regional caucuses of developing countries will be asked to designate one member each to represent them in the CG, as an interim arrangement for the first two years;
- a statement of objectives, composition and organizational structure was approved (Appendix B); it and the discussion stressed the building of networks of research to tie together DC, LDC and international institutions in ways that will build the LDCs research capabilities -- a point stressed by A.I.D. in the preparatory meeting in January; also there was a clear consensus on the need to avoid interference by the CG structure with the management autonomy and responsibilities of the Boards and administration of the international institutes;
- the initial membership of the Technical Advisory Committee was appointed by the CG (Appendix C);
- a very heavy agenda was recommended for consideration of the TAC and its Chairman, involving not only deliberation on how the TAC should play its role but also getting on quickly to consider the array of proposals already pending for new international agricultural research activities, so that the CG could have TAC recommendations on the most urgent initiatives in time to consider them at its second meeting, agreed for the first week of December; the plan is for the TAC to meet the last

The proposal for designation of LDC representation on the CG via the FAO representation structure means that it is likely that one designee will be an Iron Curtain country from Eastern Europe (not the USSR). This could be quite useful for the substantive purpose of the CG structure. I have checked this out with Assistant Secretary DePalma, who assures me that this prospect presents no problem for the USG.

It is doubtful that the Bellagio Group will meet again on international agricultural research needs, the responsibility for identifying major needs for donor support having been picked up by the new CG. That the Rockefeller and Ford Foundations take the new structure seriously was evidenced by the attendance and active participation of George Harrar and Dave Bell at both the organizing meeting in January and this first regular meeting.

It is of course too early to estimate the effectiveness of the new CG/TAC structure. However, if it is well led and staffed by IBRD/FAO, it could become one of the most significant institutional innovations for international cooperation of the decade. It has a unique combination of a major functional orientation, a combination of representative and expert structures, joint IBRD/FAO/UNDP sponsorship and staff support, and a radically new range of membership -- private institutions as well as governments, regional development financing organizations, and LDC's in a donor consultative forum. We should continue to provide full encouragement and support.

Milo

THE FORD FOUNDATION
320 EAST 43RD STREET
NEW YORK, NEW YORK 10017

INTERNATIONAL DIVISION
LATIN AMERICA

March 19, 1970

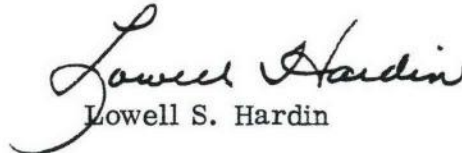
TO : Agricultural Development Conference Participants

SUBJECT : Revised Summary of Conference Held at Villa
Serbelloni, Bellagio, Italy, February 3-6, 1970

Gentlemen:

Thank you for your comments on the draft conference summary forwarded to you under date of February 19, 1970. We have attempted to incorporate your suggestions in the attached revised summary. The revised summary will be distributed to individuals who participate in the forthcoming conference to be held in Bellagio the week of April 6.

Sincerely,


Lowell S. Hardin

Encl

ACCELERATING AGRICULTURAL MODERNIZATION IN DEVELOPING NATIONS

A Summary of Findings and Suggestions of
Agriculturists from Development Assistance Agencies
Villa Serbelloni, Bellagio, Italy
February 3-6, 1970*

THE CURRENT SITUATION

In the past couple of years the agricultural sector of many developing countries has exhibited a new vitality, especially in cereal production. Contrary to the situation of a few years ago, this vitality has reached to farms usually considered traditional, even subsistence, in their production patterns. The increased output has made a substantial contribution to national economic growth, to the material well-being of peoples, and to total development.

It is likely that the altered technologies from which this so-called green revolution has sprung will continue to play a significant role in expanding food output in many countries in the next few years. Continued research on the adaptation of new varieties of wheat and rice (and the practices that must accompany their use) to local environments and to major pests and pathogens will permit a wider diffusion of production benefits among farmers and better protection of existing yields on the farms of present adopters. Indeed in some countries there is an imminent or intermediate term prospect that production will exceed domestic demand causing low farm product prices as well as strains on national and international marketing systems and older patterns of trade. The new farm technologies and their potential high productivity may create or aggravate regional disparities in per capita incomes. Also, they may reveal in stark terms some of the issues of equity surrounding national patterns of income and wealth distribution, and may contribute to further rural under-employment or unemployment, exacerbating urban migrations of rural peoples or rural social and political unrest. These are real problems which cannot be ignored and which should be urgently addressed.

In the longer term, however, the seemingly inexorable growth of world populations creates needs that will overshadow the short-run difficulties accompanying the new technologies. Present growth rates of population in Asia alone will add over 30 percent to its close to one billion people (excluding Mainland China) in the next ten years. To feed these new mouths and to ensure the necessary

*Conference sponsored by the Rockefeller Foundation as a follow-up to an earlier Agricultural Development Conference at the same location, April 23-25, 1969. See proceedings of 1969 conference as published by the Rockefeller Foundation.

agricultural contribution to economic growth of nations requires a very much broader foundation than is now available. More modern farm technology and a larger pool of manpower trained and skilled in the science and technology of farm production methods are required. These long run problems set the backdrop for the conference. Specific concern centered on feeding more people to a better nutritional standard, of providing assurance that agriculture continues to play a strongly contributive role in national economic development by growing apace with the economy and by offering gainful employment to large numbers of people irrespective of their command over personal land or capital resources.

A year ago, prospects of local wheat and rice surpluses in areas which were formerly food deficit were viewed as a possible problem. This is an important matter. But now the concerns are more generally: (a) whether over the decade of the 70's a rate of increase of 3 or 4 percent in grain output can be sustained in nations such as India and (b) whether in the developing nations available diets can in fact be improved in the face of unrelenting population increases.

The impact of existing improved wheat and rice production technologies necessarily will be limited to areas with reasonably assured water (or drainage) for crop growth. Vast land areas suited to other crops or other systems of farming as yet remain untouched by modern technologies and will remain so unless present research endeavors are intensified and strengthened. The experience of the past few years has indicated that traditional farmers will modernize their agriculture as rapidly as their personal resources and inherent propensity to caution will permit when:

1. markedly superior production technologies are available in comprehensive packages that have been adapted, tested and demonstrated as applicable for local use; and
2. favorable input to product price relationships prevail and can be expected to be maintained for two or three production seasons so that the risks of innovation are reduced and the costs associated with learning new techniques can be re-couped; and
3. efforts are coordinated successfully to provide the needed inputs at the time and place required and to assure product markets close to the farmer; and
4. an atmosphere of commitment to rural development and the initiative for its implementation are forthcoming from government.

In the case of small or tenant farmers, provisions of credit or security of tenure may be necessary to overcome resource shortages or to redress the disincentives of sharecropping.

The problem seems not to be the farmer. The focus of attention must be on the productive sureness of the proffered technological package, on the incentives in its profitability, on the infrastructure of market and other rural services available to the cultivator to support his decision for progress, and on the national ethos for development.

ANALYSIS

Recognizing the necessary role that research-generated, superior technology must play in agricultural advance, an illustrative (and very impressionistic) inventory of research needs was attempted (Table I). This tabulation of enterprises and functions by geographic areas is neither complete nor verified. It does indicate, however, judgments of relative need. Note the almost consistent three star rating (greatest need) for sorghums, grain legumes, tropical root crops, tropical livestock systems and water management. Note also the need to broaden the present relatively strong position of wheat and rice under controlled irrigation to embrace production technologies suited to harsher agricultural environments so that many more cultivators may participate in the harvest of development.

Before evolving specific suggestions in the research, training and program areas, some general guidelines were developed. While only partially spelled out here, they reflect the group's experience:

1. On-farm trials should be an integral component of national research undertakings. Extension or action types of rural production programs should be preceded by on-farm field verification trials to be certain that locally adapted, superior packages of technology are available, understood and profitable.
2. The national research-field verification trial system can often, if it takes care to do so, generate improved production packages which are suitable for small holdings as well as for larger farm units.
3. Understanding and involvement of policy makers are essential if an economic and political environment conducive to change is to be created. Involvement of state, regional and central planning bodies may be of critical importance.

4. Several types of institutional arrangements for technical-vocational and college level agricultural training, research and advisory services can work satisfactorily (e.g., Japanese, Taiwanese, U. S., Canadian, French, British, and other models). Identification and performance of essential functions rather than the institutional model itself are the important issues. Included here is a realistic projection of trained manpower needs by categories; plans to bring needed manpower on stream; training institutions which are production oriented with provision for useful internship type of experience or its equivalent.
5. Regional research (as contrasted to national or international) centers or programs logically have a role to play. For a variety of reasons, especially the difficulty of creating and maintaining multidisciplinary institutions, they have thus far achieved only modest success on the whole. Indeed, many of the essential regional functions might be better performed by a national institution which has an open policy of rendering regional services. Regionally-oriented institutions can work well where:
 - a) the users demand the institutions or programs and are willing to participate in their financing;
 - b) the institutions or programs are genuinely responsive and useful to its user cooperators;
 - c) leadership is effective;
 - d) personnel of high quality are engaged;
 - e) working linkages are effectively forged so that each institution has political influence for development;
 - f) the management and staff pursue a cohesive mission-oriented research doctrine with consistency and continuity.
6. International Centers of the IRRI-CIMMYT-CIAT-IITA type should be fully supported so long as their performance merits it. In addition, the potential contribution of possible new centers should be carefully assessed (see Suggestions below). International centers were viewed as institutional innovations designed to speed national development and to serve as tools to assist the building of stronger, harder-hitting national research programs and national problem-solving capabilities.

7. Information retrieval and dissemination in agricultural research and development experience among nations is haphazard at best. Reliance is placed upon obsolete communication technology. This frequently precludes the use of that which is already known or somewhere available and slows the pace of technological development (see Suggestions below).
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SUGGESTIONS

Considering the current situation, the analysis made above, the rough approximations made in Table I, and the record of deliberations of the April 1969 Bellagio Conference, the following suggestions are advanced:

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Means: As finance for expanded research beyond the capacity of the Foundations is clearly required an organization for funding is desirable. It is suggested that tentative proposals by the IBRD involving a consortium or consultative group or groups be examined and resolved, keeping in mind the need: 1) to encourage multilateral and bilateral donors to participate in the necessary funding and 2) to make decisions arising out of other suggestions in this paper.

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Establish two- to three-man task forces to determine the feasibility and potential usefulness of new international centers or of alternative devices to

accelerate research and training on the following (priorities depending upon feasibility studies):

- a) water management as related to crop production;
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- c) starchy root crops;
- d) livestock systems in Southeast Asia;
- e) upland crops in Asia -- sorghums, grain legumes, corn (maize), millet, barley, and appropriate cropping systems;
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- g) policy, management and analysis of socio-economic and development strategy problems.

- Means:
- 1) Present to the April 1970 Conference at Bellagio such analyses as are available to be used for illustrative purposes, e.g., water management;
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Identify key problems for study in the economic and social disciplines and determine suitable centers for work on these on a project basis.

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- 1) A task force analysis should be considered consistent with the measures suggested in II;
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Means: Invite FAO to follow-up and present a report to the April 1970 Bellagio meeting.

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- 1) Continue and expand existing fellowship and other training programs which select and send trainees to international centers and other institutions offering specialized training in agricultural production technology.
- 2) Sponsor travel-study programs for scientists, policy makers, and others concerned with national and international agricultural development to permit visits to premier research centers and outstanding development programs for direct contact and observation.

Means: Invite international and bilateral agencies concerned to give sympathetic consideration to requests for such training assistance noting the usefulness of FAO experience in this respect.

Table I. An Impressionistic View of the Need or Adequacy of Present Technical Knowledge for Accelerating Farm Production of Food Crops and Livestock, and for Improving Farm Productions Systems*

1. CROP-ORIENTED TECHNOLOGY - CEREALS

Crop	Monsoon Asia	South Asia	Near East N. Africa	Sudanian Africa	Tropical Africa	Tropical Latin America	Temperate Latin America	Andean & Mountain Areas	Comment
<u>Rice</u>									
Irrigated Controlled Deepwater	0	0	0	+	-	0	0	-	
Swamp	++	++	-	-	?	-	-	-	
Upland	-	-	-	-	++	?	-	-	
	+	+	-	++	+	+++	-	-	
<u>Wheat</u>									
Irrigated	-	0	+	+++	-	-	?	-	O in East Africa
Rainfed Spring	-	+++	+++	-	0	-	+++	-	
Rainfed Water	-	-	+++	-	-	-	-	+++	
<u>Barley</u>									
Rainfed Spring	-	+++	+++	-	-	-	?	-	
Rainfed Winter	-	-	++	-	-	-	-	?	
<u>Millet</u>									
Pennisetum	-	+++	-	+++	++	?	-	-	
Eleusine	-	++	-	-	++	?	-	-	
<u>Sorghum</u>									
Rainfed Humid	+++	+++	+++	+++	++	?	+	?	
Rainfed Semi-arid	-	+++	+++	+++	++	?	-	?	
<u>Maize</u>									
Irrigated	-	0	++	++	-	?	-	-	
Rainfed Humid	+++	++	++	++	+++	++	++	++	
Rainfed Semi-arid	-	+	-	-	+++	-	-	-	

2. CROP-ORIENTED TECHNOLOGY - OTHER CROPS

<u>Leguminous Oilseeds</u>			(1)						(1) Groundnut irrigated in Near East
Groundnuts	+++	+++	+	0	+++	+++	++	-	
Soya	+++	++		+++	+++	+++	?	+++	

2. CROP-ORIENTED TECHNOLOGY - OTHER CROPS

Crop	Moonsoon Asia	South Asia	Near East N. Africa	Sudanian Africa	Tropical Africa	Tropical Latin America	Temperate Latin America	Andean & High Mountain	Comments
<u>Grain Legumes</u>									(1) Maybe unimportant because of adequate animal protein
Temperate	-	+++	+++	+++	-	-	?(1)	++	
Tropical	+++	+++		+++	+++	+++	+	+	
Tropical Root Tubers	++	+	-	-	+++	+++	-	-	
Plantains	++	+	-	-	+++	+++	-	-	
Irish Potatoes	-	++	0	-	-	-	?	+++	
Fruits and Vegetables									See Annex

3. LIVESTOCK-ORIENTED TECHNOLOGY

<u>Tropical Bovines</u>									
Breeding research using present fodders	+	++	++	+++	+++	++	0	?	
Fodder research using present breeds	+++	+++	+++	+++	+++	+++	+++	?	
Intensive animal management altering both fodders and breeds	+++	+++	+++ (1)	+++	+++	+++	+++	?	(1) Mainly under irrigation
Pastoral animal management systems	-	+++	+++	+++	-	-	++	?	
Livestock processing and marketing	+++	+++	++	+++	+++	+++	+	?	
Pigs and poultry									See Annex

4. FARM PRODUCTION SYSTEMS TECHNOLOGY

<u>Difficult Environments</u>									
1. Low Rainfall Areas	+	+++	(+++ (1)	+++	-	-	-	-	1. and 2. can be tackled together in several countries of Near East & North Africa
2. High Mountain Areas	-	+	(+++	-	++	-	-	+++	
3. Shifting Cultivation Areas	+++	+++	-	-	+++	+++	-	-	

4. FARM PRODUCTION SYSTEMS TECHNOLOGY (continued)

	Monsoon Asia	South Asia	Near East N. Africa	Sudanian Africa	Tropical Africa	Tropical Latin America	Temperate Latin America	Andean & Mountain Areas	Comments
4. <u>Water Resources and Use</u>									
Inventory of Water Resources	++	+++	++	+	+	?	?	-	
Methods of Water Exploitation	+	++	+++	+++	+	?	?	-	
Methods of On-Farm Water Management	+++	+++	+++	+++	++	+	?	-	

5. TECHNOLOGIES TO PREVENT LOSSES

Grain Storage, Drying, Milling & Processing	+++	+++	+	+++	+++	+++	0	++	
Rodent Control (1)	+++	+++	?	?	?	?	?	?	Could this be on a project basis?

6. Subjects of Importance Requiring Attention

1. Fruit & Vegetable Crops: Needs a "systems" approach including production, marketing, and processing. Difficult to define priorities. Probably should be aimed at intensive work related to urban developments.
2. Multiple Cropping: Very important. Should it be a separate institute or part of programs of existing or proposed co-op oriented international stations? (This might also apply to "water use and management.")
3. Tropical Soil Fertility: Cover crops, shifting from shifting cultivation, fallows, etc. - Comments as 2 above.
4. Pigs and Poultry Could this perhaps be handled by appropriate government services plus incentives to private industry?
5. Mechanization: Probably best studied by wings of existing or proposed institutes rather than a special one.
6. Employment: As 5 above, information being fed into a larger coordinated project contracted to an agency, or a university? Do we need some kind of "Agricultural Policy Institute"?
7. Water Pollution: Of growing concern. Agriculture both a main asset and a main polluter. Perhaps a "developed country" project.
8. Pesticide Pollution: Long-term toxic hazards for DDT, mercury, etc. Essential to find cheap, safe, effective substitutes: As 7 above.
9. Animal Disease Control: Especially those affecting large areas (F&M: Trypanosomiasis). Perhaps a program approach?

- Legend:
- O Present technical knowledge is generally adequate to support production extension programs where the idiosyncrasies of the farming environment do not demand specially designed or particularly adapted research results.
 - + There seems to be a general deficiency in present technical knowledge of how to raise farm output. The number of + marks gives a rough indication of the relative extent of the deficiency, +++ indicating the greatest need for more research, and ++ and + indicating respectively lower levels of need.
 - ? Situation unknown to the authors of the table.
 - The subject matter is not relevant to the farming of the geographic region.

* This table must be used with great caution. It was not discussed fully at the Conference and little attempt was made to probe its contentions or verify its pretensions. It was presented to the Conference as a rough "cocktail session" outline of problems areas as seen by Oram, Fournier and Hopper. It reflects impressions, experience and conference suggestions. The authors and many members of the Conference suggested the need for greater subject matter and geographic detail. Greater detail was not included, however, because more "boxes" would have led to more question marks and, perhaps, to even greater errors of judgment. The table was appended to the Conference summary because, for all its limitation, it was found useful as a first approximation exposure of needed agricultural research.

In developing the table, the authors discussed and then specifically excluded consideration of plantation food crops. The exclusion is not a reflection of the unimportance of these crops as food sources in many areas of the world. The decision to exclude them from the table was taken purely on pragmatic grounds of the inadequacy of the authors' own knowledge about them and the need to keep the table within reasonable bounds.

It should be pointed out that the table does not indicate the relative importance of each subject matter item in the agriculture or in the agricultural development opportunities of a given geographic region. It is only a rough ranking of the adequacy of the technical knowledge available upon which to found the acceleration of agricultural modernization.

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Villa Serbelloni, Bellagio (Como), Italy
February 3-6, 1970

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NEW YORK, NEW YORK 10017

INTERNATIONAL DIVISION
LATIN AMERICA

February 19, 1970

TO Participants in the Agricultural Development Conference,
Villa Serbelloni, Bellagio, Italy, February 3-6, 1970

Gentlemen:


On behalf of Sterling Wortman and all concerned, our thanks for your full and spirited participation in the Bellagio conference.

Sterling has suggested that we forward each of you two copies of the conference summary. They are attached. We request that you advise us within ten days, mailing your comments and suggestions to Lowell Hardin, if you find sections which should be modified to reflect more accurately the substance of our discussions.

In the meantime, perhaps you will share a copy of the summary with the person in your organization who will be participating in the April, 1970 Bellagio session. The Rockefeller Foundation will also make distribution of related materials prior to April. This will include a copy of the summary of our conference.

We benefitted from the opportunity to work with you and welcome this opportunity to know you and your organization better.

Sincerely,



W. David Hopper


Lowell S. Hardin

Encl

ACCELERATING AGRICULTURAL MODERNIZATION IN DEVELOPING NATIONS

A Summary of Findings and Suggestions of
Agriculturists from Development Assistance Agencies
Villa Serbelloni, Bellagio, Italy
February 3-6, 1970*

THE CURRENT SITUATION

In the past couple of years the agricultural sector of many developing countries has exhibited a new vitality. Contrary to the situation of a few years ago, this vitality has been in cereal production from farms usually considered traditional, even subsistence, in their production patterns. The increased output from these farms has made a substantial contribution to national economic growth, to the material well-being of peoples, and to total development.

It is likely that the altered technologies from which this so-called green revolution has sprung will continue to play a significant role in expanding food output in many countries in the next few years. Continued research on the adaptation of new varieties of wheat and rice (and the practices that must accompany their use) to local environments and to major pests and pathogens will permit a wider diffusion of production benefits among farmers and better protection of existing yields on the farms of present adopters. Indeed in some countries there is an imminent or intermediate term prospect that production will exceed domestic demand causing low farm product prices as well as strains on national and international marketing systems and older patterns of trade. The new farm technologies and their potential high productivity may create or aggravate regional disparities in per capita incomes. Also, they may reveal in stark terms some of the issues of equity surrounding national patterns of income and wealth distribution, and may contribute to further rural under-employment or unemployment, exacerbating urban migrations of rural peoples or rural social and political unrest. These are real problems which cannot be ignored and which should be urgently addressed.

In the longer term, however, the seemingly inexorable growth of world populations will overshadow the short-run difficulties accompanying the new technologies. Present growth rates of population in Asia alone will add over 40 percent to its close to one billion people (excluding Mainland China) in the next ten years. To feed these new mouths and to place a basement under the overall

*Conference sponsored by the Rockefeller Foundation as a follow-up to an earlier Agricultural Development Conference at the same location, April 23-25, 1969. See proceedings of 1969 conference as published by the Rockefeller Foundation.

economic growth of nations requires a very much broader foundation than is now available. More modern farm technology and a larger pool of manpower trained and skilled in the science and technology of farm production methods are required. The long run problems set the backdrop for the conference. Specific concern centered on feeding more people to a better nutritional standard, of providing assurance that agriculture continues to play a strongly contributive role in national economic development by growing apace with the economy and by offering gainful employment to large numbers of people irrespective of their command over personal land or capital resources.

The impact of existing improved wheat and rice production technologies necessarily will be limited to areas with reasonably assured water (or drainage) for crop growth. Vast land areas suited to other crops or other systems of farming as yet remain untouched by modern technologies and will remain so unless present research endeavors are intensified and strengthened. The experience of the past few years has indicated that when:

1. markedly superior production technologies are available in comprehensive packages that have been adapted, tested and demonstrated as applicable for local use; and
2. favorable input to product price relationships prevail and can be expected to be maintained for two or three production seasons so that the risks of innovation are reduced and the costs associated with learning new techniques can be re-couped; and
3. an atmosphere of commitment to rural development and the initiative for its implementation are forthcoming from government; and
4. efforts are coordinated successfully to provide the needed inputs at the time and place required and to assure product markets close to the farmer;

traditional farmers will modernize their agriculture as rapidly as their personal resources and inherent propensity to caution will permit. (In the case of small or tenant farmers, provisions of credit or security of tenure may be necessary to overcome resource shortages or to redress the disincentives of sharecropping.)

The problem seems not to be the farmer. The focus of attention must be on the productive sureness of the proffered technological package, on the

incentives in its profitability, on the national ethos for development, and on the infrastructure of market and other rural services available to the cultivator to support his decision for progress.

ANALYSIS

Recognizing the necessary role that research-generated, superior technology must play in agricultural advance, an illustrative (and very impressionistic) inventory of research needs was attempted (Table I). This tabulation of enterprises and functions by geographic areas is neither complete nor verified. It does indicate, however, judgments of relative need. Note the almost consistent three star rating (greatest need) for sorghums, grain legumes, tropical root crops, tropical livestock systems and water management. Note also the need to broaden the present relatively strong position of wheat and rice under controlled irrigation to embrace production technologies suited to harsher agricultural environments so that many more cultivators may participate in the harvest of development.

Before evolving specific suggestions in the research, training and program areas, some general guidelines were developed. While only partially spelled out here, they reflect the group's experience:

1. On-farm trials should be an integral component of national research undertakings. Extension or action types of rural production programs should be preceded by on-farm field verification trials to be certain that locally adapted, superior packages of technology are available, understood and profitable.
2. The national research-field verification trial system can often, if it takes care to do so, generate improved production packages which are suitable for small holdings as well as for larger farm units.
3. Understanding and involvement of policy makers are essential if an economic and political environment conducive to change is to be created. Involvement of state, regional and central planning bodies may be of critical importance.
4. Several types of institutional arrangements for technical-vocational and college level agricultural training, research and advisory services can work satisfactorily (e.g., Japanese, Taiwanese, U. S., Canadian, French, British, and other models). Identification and performance of essential functions rather than the institutional model itself are the

important issues. Included here is a realistic projection of trained manpower needs by categories; plans to bring needed manpower on stream; training institutions which are production oriented with provision for useful internship type of experience or its equivalent.

5. While regional research (as contrasted to national or international) centers or institutions have thus far and for a variety of reasons achieved only modest success on the whole, they logically have a role to play. Indeed, many of the essential regional functions might be better performed by a national institution which has an open policy of rendering regional services. A regional research focus is logical where:
 - a) the users demand the institutions or programs and are willing to participate in their financing;
 - b) the institutions or programs are genuinely responsive and useful to its user cooperators;
 - c) leadership is effective;
 - d) personnel of high quality are engaged;
 - e) working linkages are effectively forged so that each institution has political influence for development;
 - f) the management and staff pursue a cohesive mission-oriented research doctrine with consistency and continuity.
6. International Centers of the IRRI-CIMMYT-CIAT-IITA type should be fully supported so long as their performance merits it. In addition, the potential contribution of possible new centers should be carefully assessed (see Suggestions below). International centers were viewed as institutional innovations designed to speed national development and to serve as tools in building stronger, harder-hitting national research programs and national problem-solving capabilities.
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Establish two-to-three-man task forces to determine the feasibility and potential usefulness of new international centers or of alternative devices to accelerate research and training on the following (priorities are not intended as realistic assessments are contingent upon the completion of the task force assignments):

- a) water management as related to crop production;
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Means: Invite FAO to follow-up and present a report to the April 1970 Bellagio meeting.

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Swamp	-	-	-	-	++	?	-	-	
Upland	+	+	-	++	+	+++	-	-	
<u>Wheat</u>									
Irrigated	-	0	+	+++	-	-	?	-	0 in East Africa
Rainfed Spring	-	+++	+++	-	0	-	+++	-	
Rainfed Water	-	-	+++	-	-	-	-	+++	
<u>Barley</u>									
Rainfed Spring	-	+++	+++	-	-	-	?	-	
Rainfed Winter	-	-	++	-	-	-	-	?	
<u>Millet</u>									
Pennisetum	-	+++	-	+++	++	?	-	-	
Eleusine	-	++	-	-	++	?	-	-	
<u>Sorghum</u>									
Rainfed Humid	+++	+++	+++	+++	++	?	+	?	
Rainfed Semi-arid	-	+++	+++	+++	++	?	-	?	
<u>Maize</u>									
Irrigated	-	0	++	++	-	?	-	-	
Rainfed Humid	+++	++	++	++	+++	++	++	++	
Rainfed Semi-arid	-	+	-	-	+++	-	-	-	

2. CROP-ORIENTED TECHNOLOGY - OTHER CROPS

<u>Leguminous Oilseeds</u>			(1)						(1) Groundnuts
Groundnuts	+++	+++	+	0	+++	+++	++	-	irrigated in
Soya	+++	++		+++	+++	+++	?	+++	Near East

2. CROP-ORIENTED TECHNOLOGY - OTHER CROPS

Crop	Monsoon Asia	South Asia	Near East N. Africa	Sudanian Africa	Tropical Africa	Tropical Latin America	Temperate Latin America	Andean & High Mountain	Comments
<u>Grain Legumes</u>									(1) Maybe unimportant because of adequate animal protein
Temperate	-	+++	+++	+++	-	-	?(1)	++	
Tropical	+++	+++		+++	+++	+++	+	+	
Tropical Root Tubers	++	+	-	-	+++	+++	-	-	
Plantains	++	+	-	-	+++	+++	-	-	
Irish Potatoes	-	++	0	-	-	-	?	+++	
Fruits and Vegetables									See Annex

3. LIVESTOCK-ORIENTED TECHNOLOGY

<u>Tropical Bovines</u>									
Breeding research using present fodders	+	++	++	+++	+++	++	0	?	
Fodder research using present breeds	+++	+++	+++	+++	+++	+++	+++	?	
Intensive animal management altering both fodders and breeds	+++	+++	+++ (1)	+++	+++	+++	+++	?	(1) Mainly under irrigation
Pastoral animal management systems	-	+++	+++	+++	-	-	++	?	
Livestock processing and marketing	+++	+++	++	+++	+++	+++	+	?	
Pigs and poultry									See Annex

4. FARM PRODUCTION SYSTEMS TECHNOLOGY

<u>Difficult Environments</u>									
1. Low Rainfall Areas	+	+++	(+++ (1)	+++	-	-	-	-	1. and 2. can be tackled together in several countries of Near East & North Africa
2. High Mountain Areas	-	+	(+++	-	++	-	-	+++	
3. Shifting Cultivation Areas	+++	+++	-	-	+++	+++	-	-	

4. FARM PRODUCTION SYSTEMS TECHNOLOGY (continued)

	Monsoon Asia	South Asia	Near East N. Africa	Sudanian Africa	Tropical Africa	Tropical Latin America	Temperate Latin America	Andean & Mountain Areas	Comments
4. <u>Water Resources and Use</u>									
Inventory of Water Resources	++	+++	++	+	+	?	?	-	
Methods of Water Exploitation	+	++	+++	+++	+	?	?	-	
Methods of On-Farm Water Management	+++	+++	+++	+++	++	+	?	-	

5. TECHNOLOGIES TO PREVENT LOSSES

Grain Storage, Drying, Milling & Processing	+++	+++	+	+++	+++	+++	0	++	
Rodent Control (1)	+++	+++	?	?	?	?	?	?	Could this be on a project basis?

6. Subjects of Importance Requiring Attention

1. Fruit & Vegetable Crops: Needs a "systems" approach including production, marketing, and processing. Difficult to define priorities. Probably should be aimed at intensive work related to urban developments.
2. Multiple Cropping: Very important. Should it be a separate institute or part of programs of existing or proposed co-op oriented international stations? (This might also apply to "water use and management.")
3. Tropical Soil Fertility: Cover crops, shifting from shifting cultivation, fallows, etc. - Comments as 2 above.
4. Pigs and Poultry Could this perhaps be handled by appropriate government services plus incentives to private industry?
5. Mechanization: Probably best studied by wings of existing or proposed institutes rather than a special one.
6. Employment: As 5 above, information being fed into a larger coordinated project contracted to an agency, or a university? Do we need some kind of "Agricultural Policy Institute"?
7. Water Pollution: Of growing concern. Agriculture both a main asset and a main polluter. Perhaps a "developed country" project.
8. Pesticide Pollution: Long-term toxic hazards for DDT, mercury, etc. Essential to find cheap, safe, effective substitutes: As 7 above.
9. Animal Disease Control: Especially those affecting large areas (F&M: Trypanosomiasis). Perhaps a program approach?

- Legend:
- O Present technical knowledge is generally adequate to support production extension programs where the idiosyncrasies of the farming environment do not demand specially designed or particularly adapted research results.
 - + There seems to be a general deficiency in present technical knowledge of how to raise farm output. The number of + marks gives a rough indication of the relative extent of the deficiency, +++ indicating the greatest need for more research, and ++ and + indicating respectively lower levels of need.
 - ? Situation unknown to the authors of the table.
 - The subject matter is not relevant to the farming of the geographic region.

* This table must be used with great caution. It was not discussed fully at the Conference and little attempt was made to probe its contentions or verify its pretensions. It was presented to the Conference as a rough "cocktail session" outline of problems areas as seen by Oram, Fournier and Hopper. It reflects only their impressions gathered from their own experience. The authors and many members of the Conference suggested the need for greater subject matter and geographic detail. Greater detail was not included, however, because more "boxes" would have led to more question marks and, perhaps, to even greater errors of judgment. The table was appended to the Conference summary because, for all its limitation, it was found useful as a first approximation exposure of needed agricultural research.

In developing the table, the authors discussed and then specifically excluded consideration of plantation food crops. The exclusion is not a reflection of the unimportance of these crops as food sources in many areas of the world. The decision to exclude them from the table was taken purely on pragmatic grounds of the inadequacy of the authors' own knowledge about them and the need to keep the table within reasonable bounds.

It should be pointed out that the table does not indicate the relative importance of each subject matter item in the agriculture or in the agricultural development opportunities of a given geographic region. It is only a rough ranking of the adequacy of the technical knowledge available upon which to found the acceleration of agricultural modernization.

Participants
Conference on Agricultural Development
Villa Serbelloni, Bellagio (Como), Italy
February 3-6, 1970

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Summary of
Conference of Heads of Assistance Agencies
(Bellagio IV)
New York, December 3-4, 1970

Background

This was the fourth meeting of major development assistance agencies concerned with agricultural research and development. It was held under the auspices of the Rockefeller and Ford Foundations. A list of the participants is attached.

The earlier conferences were held at Villa Serbelloni, Bellagio, Italy. The first, a meeting of heads of agencies held April 23-25, 1969, discussed ways in which the agencies individually or together could accelerate agricultural progress. The second meeting, of agricultural representatives of assistance agencies, held on February 3-6, 1970, developed recommendations to heads of agencies. These recommendations served as the agenda for the next meeting of heads of agencies on April 8-9, 1970.

At that conference (Bellagio III), the discussions focused on impediments to agricultural development and the potential critical contribution that can be made to their resolution by international centers, such as the International Rice Research Institute, or other forms of international cooperation. Bellagio III identified five areas of major importance and requested the Foundations and the Canadian International Development Research Centre to prepare papers concerning the need for possible new international research efforts in each:

1. Upland or rainfed crops
2. Food legumes
3. Animal health and livestock production in tropical Africa
4. Water management
5. Agricultural policy management.

During the summer and fall, special papers were prepared on each of these five areas, and these papers formed the main agenda for the Bellagio IV meeting.

Substance of the Meeting

To begin with, the group reviewed a brief paper by Nathan Koffsky on "The Agricultural Situation in the Developing World". The major conclusions of the paper, concurred in by the group, were that viewed globally, developing nations have not yet demonstrated the capacity to feed their rapidly rising populations. Although some progress has occurred, per capita food output remains low and malnutrition is widespread. A major thrust of developing nations, therefore, must continue to be directed toward accelerating output and improving distribution to meet food and nutritional needs.

The group then turned to a discussion of the special papers prepared for the meeting. It was agreed that no final judgments would be attempted, but an effort would be made to clarify issues preparatory to the January 14-15, 1971 meeting of the Consultative Group which is being formed by IBRD, UNDP and FAO.

The first special paper considered by the group was Dr. Hill's paper on the additional funding requirements for the four existing international institutes, "Estimated Financial Needs of IRRI, CIMMYT, IITA and CIAT, 1971-75". The main conclusion of Dr. Hill's paper was that completion of present staffing plans and inevitable rises in costs will require by 1975 annual core budget support for the four existing centers on the order of \$6 millions more than funding now in sight. (The core budgets for the four existing centers totals about \$10 millions for 1971.) This conclusion was generally accepted by the group, and it was agreed that it would be necessary to find assurances that these funds could be raised before undertaking to add further responsibilities to the existing centers or to establish additional centers. Moreover, the representatives of the Ford and Rockefeller Foundations stated that their financial abilities were stretched to the limit by their present commitments to the four institutes (\$3 million per year from each Foundation), and if the group wanted the two Foundations to participate in establishing any new institutes, it would be necessary to relieve them of part of their present financial commitments to the existing institutes. In response to questions, the two Foundations stated their willingness, if requested, to continue their participation in the management of the existing institutes as well as to help establish one or two new institutes should that later be undertaken.

The conference proceeded to discussions of five studies related to possible new areas of international cooperation.

1. An International Upland Crops Program

The group was in full accord as to the urgent need for a research and training program for upland or rainfed crops. In particular, work is needed on sorghums and millets which are the basic staples for large masses of rural people in newly developing countries.

The study recommends:

- (1) That a detailed proposal be prepared for an international upland crops institute, to be established in Asia. This institute would serve as (a) a center to develop and demonstrate improved cropping patterns and systems of farming which optimize the use of human and natural resources in low-rainfall, unirrigated, upland tropics; and (b) a world research center for improvement of sorghum, millets, chick-peas and pigeon peas.
- (2) That the International Rice Research Institute be requested to analyze the feasibility of expanding its program to include upland rice and crops grown in rotation with rice in the high rainfall, seasonally dry, undulating to rolling, tropical uplands.
- (3) That the International Maize and Wheat Improvement Center be requested to analyze the feasibility of expanding its work on wheat grown in the low-rainfall, unirrigated, low-latitude areas.

It is recommended that the proposed center be established in Asia, if feasible, with coordination and linkage to ongoing sorghum and millet work in Africa.

The main points of discussion related to the diversity of conditions under which sorghums and millets are grown and the need to tailor technology quite precisely to soils and weather so as to minimize risks for the cultivator. It was recognized that in order for a center to do effective training for these crops it would need to offer solutions to a wide array of conditions.

It was agreed that a technical review panel would be convened in the spring of 1971 to evaluate the scientific requirements for a program to improve sorghum and millet technology and to point up the kind of cooperative work at various locations that would be needed. This would involve existing as well as new establishments.

2. Research on Food Legumes

Food legumes, or pulses, are an important source of protein in most developing countries. Great benefits in nutrition would result from increased consumption of these crops. They are highly diverse and complex.

The study identifies 6 of these crops as of prime importance and because of their diversity proposes the allocation of efforts to various centers as follows:

Dry beans	CIAT
Cowpeas	IITA
Pigeon peas	Proposed Upland Crop Center in Asia (or alternatively IITA)
Chick-peas	Proposed Upland Crop Center in Asia (or alternatively CIMMYT)
Soybeans	CIAT or IITA
Peanuts	IITA or other African research organizations.

There was a consensus that additional work on soybeans and peanuts would be of lower priority at this time because of work already under way, multiple uses and related problems of marketing. It was agreed that the study should go forward for the first four legumes.

3. Animal Health and Livestock Production in Africa

Livestock enterprises can provide an important element for agricultural development in sub-Saharan Africa. There is an immediate need to control

animal diseases which effectively bar such development in large areas of the continent, and over the longer run to remove other constraints, including socio-economic factors.

The study recommends:

- (1) That action be taken at once to establish an international animal disease research laboratory to be located in Nairobi, Kenya, near the Faculty of Veterinary Science and the Faculty of Agriculture of the University of Nairobi. The primary mission of the laboratory would be to develop effective methods for the control of East Coast Fever and Trypanosomiasis.
- (2) That a detailed proposal be developed for an international livestock production research and training center in Africa. It would focus on removing the major constraints to expanded beef-cattle production in the sub-Sahara region. It would assist nations in the development of their livestock industries through research on broad issues of international importance, accelerate the training of competent scientific leadership, and facilitate international cooperation.
- (3) That a major objective of proposed new organizations should be to complement and help strengthen present national and regional efforts. Therefore, assistance agencies should continue to give support to such programs.

With respect to the animal disease research laboratory, there was considerable discussion as to the effect a new institution might have on existing establishments, particularly on the work at EAVRO in Kenya. African regional institutes are generally quite fragile and vulnerable.

Additionally, it was noted that there has been substantial progress in developing vaccine for East Coast Fever, with a more definitive evaluation as to its potentials to become available in the next five months or so. However, it was also noted that there were many other animal diseases on which work is needed.

With respect to livestock production research, the consensus was that this, because of its many facets, would require much more investigation

and study before arriving at a recommendation. Some felt that such research probably should not be undertaken in a separate facility but should be gradually integrated with the work on diseases. It was suggested that work on other animals, particularly sheep, be added to the proposal for cattle.

The meeting agreed that the subject should be explored more intensively. Further exploration should be given to the work under way in Africa and a more precise evaluation developed of what research is needed. The alternative of building up EAVRO into an International Center should be considered. The discussions should also include the possible integration of research on animal production with that of animal health.

4. Water Management

Large-scale investments in public irrigation projects have rarely made their optimum contribution to agricultural development. Much of the weakness lies in water management control for crop production which is affected by both off-farm and on-farm activities and the lack of training of technical personnel engaged in water management at the farm level.

The study recognizes that a number of international organizations have supported pilot projects on water management in irrigated areas in developing countries for some years. Accordingly, it recommends that:

- (1) Pilot models of comprehensive agricultural development in portions of existing irrigation-drainage project areas continue to be emphasized for adaptive research and practical training in agricultural water management.
- (2) A seminar be held, as soon as possible, at which experiences with pilot projects and programs of international organizations would be reviewed and the potential usefulness of new international or regional mechanisms for pilot project assistance would be explored.
- (3) Investigations be made by separate expert task forces to determine the needs for additional:
 - (a) basic research on soil-water-crop-input-cultural practices relationships at crop-oriented international research institutes;

- (b) assistance with institutional training in the agricultural aspects of water management;
- (c) assistance with the acceleration of assessments of groundwater resources and with training in modern groundwater measurement and development techniques.

The consensus of the meeting was that the study correctly identified training in water management at the farm level as an important problem area. There is an apparent need for some international or regional communication and clearing house center to coordinate and service outreach efforts in this field. CIDRC was encouraged to move ahead on the proposal for an early symposium to explore key needs for agricultural water management research and training.

5. Agricultural Policy Management

National planning agencies concerned with agricultural development are seriously handicapped by the lack of specific, relevant information on which to base policy and program decisions regarding the order of priorities in the development process and the efficient allocation and use of resources.

The study recommends the strengthening of national institutions in developing countries in South and Southeast Asia to engage in policy-oriented research on common problems in the region, linking those institutions together and encouraging parallel research efforts through a small international staff. It is proposed that details for such an arrangement, including location of the central facility, be developed with the assistance of a representative group of Asian policy officials and researchers.

The consensus of the meeting was that such a proposal might well make an important contribution to building the in-country capacity to handle agricultural development. The point was stressed that the demand for such an activity must come from the nations concerned and be shaped by them even though some leadership may need to be provided from the outside.

In addition to the emphasis in the study report on generating on-farm data for policy purposes, it was suggested that case studies of pilot development projects be undertaken to provide information on key points which make for success or failure. However, it was agreed that decisions as to research topics as well as other facets of the research network be made by Asians.

It was further noted that the potential for similar networks likely exists in other regions and in fact the Ford Foundation is providing leadership toward such a network in Latin America.

* * * * *

Two additional items were briefly discussed. The group in its April 1970 meeting had requested the Foundations to look into possible cooperative international efforts closely related to agricultural development-- population and education. With respect to the population problem, a committee is at work and will shortly present recommendations to the Bellagio group. Specifics of a possible agenda in the area of education are less well formulated. The Foundations agreed, however, to give further consideration to the possible content of a future meeting of the Bellagio group on education and to report back to the group by mail within two or three months.

MEMORANDUM FOR: EXSEC, Tom Arndt

2 December 1970

FROM: TA/SSS, Alex B. Daspit

SUBJECT: Additional Briefing Materials for Administrator's Participation
in Meeting of "Bellagio Group"

I told you there would^{be} an additional paper to add to Dr. Hannah's briefing for the Bellagio Group meeting. It was drafted by the Africa Bureau but when I sent it to Bernstein for his clearance, he decided that TAB should add some material.

You accordingly will find two papers attached - one the Africa Bureau's proposed intervention by Dr. Hannah under "Other business"; the other some questions and implications prepared by Glenn Schweitzer, Director for Science and Technology.

I am forwarding these papers without Bernstein's initials because time is growing short and it is doubtful that Bernstein will be back to sign this afternoon. The memorandum was discussed with him and reflect his ideas.

cc: Joel Bernstein, AA/TA

BRIEFING MEMORANDUM FOR THE ADMINISTRATOR

THRU: EXSEC

FROM: AA/TA, Joel Bernstein

SUBJECT: International approach to innovations in
agriculture engineering

The attached memorandum prepared by the Africa Bureau proposes that the Bellagio Group undertake a study of an international institute approach to more effective adaptation of agriculture engineering techniques to the needs of developing countries. While many types of farm machinery and implements have been developed under agriculture projects supported by A.I.D. and other donors throughout the world, the impact of these efforts has frequently been limited by lack of adoption of the technologies that have become available. Thus, a critical review of past efforts and possible new approaches--with particular emphasis on the impact of technology on labor and income patterns, crop diversification, and farm consolidations--seems timely.

Recent machinery and equipment innovations developed at IRRI and by the University of Nebraska in Colombia provide good starting points for such a study. Also, the Japanese have made impressive advances in recent years. The IRRI and Japanese experience is currently being incorporated into Project Vanguard activities in Africa. These and other experiences in the field suggest that it may be preferable to incorporate a stronger agriculture engineering component--including the extension aspect--into the activities of existing or planned international institutes rather than establish specific institutes for this purpose.

The broader field of intermediate technology--including rural building technologies, utilization of agricultural wastes, design of small-scale processing plants and equipment, upgrading artisan industries, and innovations in

2

small and medium scale industry--are currently under intensive study by a panel of the National Academy of Sciences set up at our request. We are also beginning to develop several new efforts which will build on past experience of A.I.D. in this field. We anticipate that donor coordination in the general field of intermediate technology will be effected through a proposed OECD/DAC working group on science and technology.

Attachment:

Memo of Africa Bureau

TA/OST, GSchweitzer:ah:12-2-70

December 4, 1970 - 11:15 a.m. - Other Business:

INTERMEDIATE TECHNOLOGY

BACKGROUND

Depending on the tenor of the previous discussion and whether the Bellagio Group plans to meet again to discuss further reports on the new initiatives proposed at this meeting, you may consider it appropriate to propose an additional topic for study. This proposal is directly related to the suggestions made by Robert Gardiner of ECA in his discussion with you on November 3. You will recall that Mr. Gardiner suggested the need for the establishment of additional research and training institutes along the lines of IRRI and CIMMYT including one to develop new technologies with special emphasis on tools and machinery appropriate to Africa. Although Mr. Gardiner spoke only of Africa, the proposal obviously would apply to other regions as well.

Gardiner's interest is representative of a widely shared belief that there should be better technological options available to the LDC's which find themselves torn between traditional unproductive techniques and the techniques of the developed nations, techniques which are capital intensive and employ little labor despite a large and increasing number of under and unemployed and which are of dubious suitability to other LDC circumstances.

If appropriate tools, equipment and technology are not available, new seeds and other inputs such as fertilizer and pesticides will not be fully effective. Also, a shift to sophisticated mechanized equipment will add to unemployment. Moreover, in many instances, producers may be unable to operate such equipment properly.

Some attention has been accorded this problem by the ODM which has provided limited support to the work of The Intermediate Technology Work Group, a private organization which coined the term "intermediate technology" to define the nature of the required technology. (The term may not be popular among LDC's but no better has yet been found). A.I.D. has provided limited financial assistance to the International Rice Research Institute (IRRI) in the Philippines for research on developing types of equipment suited for the use of smaller rice growers there. A thresher developed there reportedly has impressive potential.

TALKING POINTS

There has been no concerted effort in other areas comparable to the work done in the biological sciences. It seems quite possible, for example, that mechanical equipment is, for the most part, either produced by manufacturers catering to the developed world or left to the inspiration of individuals such as the technician who introduced the steel point for wooden plows in India.

Could not a "critical mass" of researchers develop tools and equipment to meet the need for capital-stingy labor-employing technology for the LDC farm? This is a subject which we would like to have studied and reported on at a later meeting of this group. If others are interested, A.I.D. would be prepared to participate in such a study.

The choice of focus for possible initial efforts in intermediate technology should be addressed since the potential range is great. Mechanical tools and equipment for the farm are only one possibility; others might be considered. However, the initial effort should be highly selective. The most appropriate organizational arrangement should also be studied.

Comments on Draft — FC. Jones 11/16/70

Re. 2nd para. p 1 + 2. In objectives for further study, attention should be focused on the need to relate Center activities to national institutional program and development planning.

Same para. I am not sure that Rockefeller has not gone pretty far down the road in selecting a site.

pt 1 page 3. We agree entirely.

pt 2 page 3. We would favor a consolidated center with satellite activity at appropriate institutions (in terms of staff & facilities) throughout Eastern Africa with close ties to related research in West Africa.

pt 3 We have the feeling that the Rockefeller Foundation as a result of its long history of support of research in Africa, has a special responsibility to support research in Africa. We are not sure of course, but we think that the Rockefeller Foundation should be in a position to support research in Africa.

pt 3. The evaluation of the EAVRO situation is apt. However the CBPP project is at least temporarily suspended and its reactivation would fit into the new institution as readily, or perhaps more readily, than it would into EAVRO. In any event it appears EAVRO will be eclipsed or if it survives will remain weak and ineffective unless EAC reverses its policies re support and management.

pt. 4. We agree with the 3 areas of interest on the part of donors. The selection of the Director is a particularly sensitive point.

STATE - A.I.D. - USIA ROUTING SLIP				DATE <u>11/27/70</u>		
TO	Name or Title	Organ. Symbol	Room No.	Bldg.	Initials	Date
1.	<i>Dr. Kelley</i>					
2.						
3.						
4.						
5.						

Approval	For Your Information	Note and Return
As Requested	Initial for Clearance	Per Conversation
Comment	Investigate	Prepare Reply
File	Justify	See Me
For Correction	Necessary Action	Signature

REMARKS OR ADDITIONAL ROUTING

*Here it is, delivered with some
travails. Although typed in "final"
form, it can of course be amended.
I'll expect a call from you when
you have had a chance to run
through it.*

*See my note attached
m/s*

FROM: (Name and Org. Symbol) <i>Alex D -</i>	ROOM NO. & BLDG.	PHONE NO. <i>23572</i>
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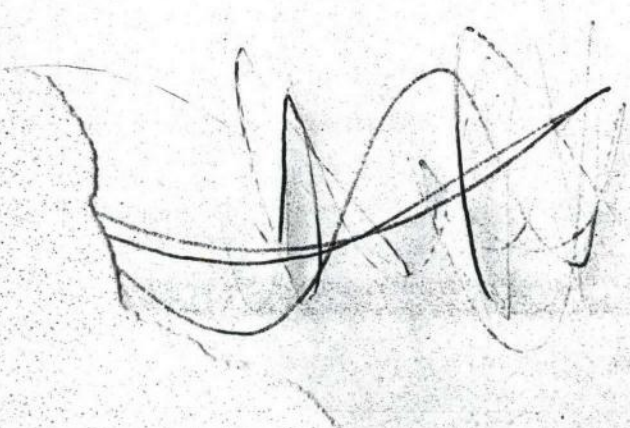
BRIEFING PAPER
FOR BELLAGIO GROUP MEETING
December 3-4, 1970

The purpose of the New York meeting of the Bellagio Group is to review the financial requirements of the four existing international centers for agricultural research and to consider the desirability of establishing certain new institutes proposed in several studies authorized by the Group which met in Bellagio last April. Each of the proposals is effectively summarized in the Agenda prepared by the Foundations, the briefing material which follows is therefore limited for the most part to statements of AID's preliminary reactions to the proposals.

I. December 3, 9:30. A Review of the World Agricultural Situation

This half-hour session is clearly intended merely as a back-drop for the substantive discussion of the meeting. It does not present data which require a reappraisal of policy, or raise problems likely to stimulate discussion.

Talking Points: It might be desirable to note in passing that the paper seems to accept the level of crop production in the LDCs as a supply function operating independently of demand factors. In reality, the increase in production noted in Asia cannot be fully explained without some consideration of subsidized prices; while the decrease in Latin America may well be due in large part to lack of effective demand.



II. December 3, 10:00. The Existing International Agricultural Research Institutes Their Progress and Financial Requirements

This paper measures the gap between the budgetary requirements of the existing institutes and the funds more or less securely available to meet these requirements, and throws into high relief the dilemma created by proposals for new research institutes. The gap increases from \$850,000 in 1971 to \$6,000,000 in 1975; it will be enlarged by the establishment of any new institutes, in addition, there will be substantial capital costs. For convenience, the figures for both the existing and the proposed institutes are presented in a summary table on the attached page.

Note that the total annual budgets of the existing centers plus those proposed in the papers under consideration, would amount to approximately \$24 million by 1975. Funds in sight are only a shade over \$10 million. Unless the World Bank is prepared to make a really substantial contribution (which they have not thus far indicated) the prospects for covering this \$14 million gap do not appear promising.

Talking Points.

1. The Agenda statement indicates that the Foundations will probably be unable to increase their total budgetary support to international research in order to meet requirements of new centers; consequently, any funding of new research enterprises would involve a reduction in support for those already in existence. When AID became a "full share partner" in supporting the four established institutes, the Agency committed itself to provide funds at the same level as the Foundations. In view of the undesirability of the United States Government assuming a dominant role in these enterprises as well as the limitations in the Agency's appropriations, if the Foundations maintain their stated ceiling on total spending, and shift some of their funds from established to new institutions, AID would probably feel constrained to reduce its contributions to the established institutes commensurately with any reduction in the Foundations' support.

2. AID would urge the Foundations not to diminish the level of their support to existing institutions in the absence of assured funding from other sources adequate at least to compensate for the reduction of their support, and a probable corresponding reduction in AID funding. We would in fact question the wisdom of any diversion of funds from the four established institutions before sufficient additional funding to permit them to meet their projected requirements is assured.

3. We believe that the Foundations' management of the research institutes and their constructive participation in the deliberations of the Boards has been a vital element in the success of these enterprises. We would be disturbed by any change in these arrangements.

**CORE BUDGET REQUIREMENTS AND PROMISED SUPPORT FOR
FOUR ESTABLISHED CENTERS**

Thousand of Dollars

	1971	1972	1973	1974	1975
<u>IRRI</u>					
Net projected expense	\$2,500 ^{1/}	\$2,350	\$2,450	\$2,600	\$2,750
Prospective income	\$2,500	\$2,250	\$2,250	\$2,250	\$2,250
DEFICIT	--	\$ 100	\$ 200	\$ 350	\$ 500
<u>CIMMYT</u>					
Net projected expense	\$3,150	\$3,150	\$3,550	\$3,850	\$4,200
Prospective income	\$2,300	\$2,300	\$2,350	\$2,350	\$2,350
DEFICIT	\$ 850	\$ 850	\$1,200	\$1,500	\$1,850
<u>IITA</u>					
Net projected expense	\$2,150	\$3,000	\$3,500	\$3,950	\$4,150
Prospective income	\$2,150	\$3,000	\$3,050	\$3,050	\$3,050
DEFICIT	--	--	\$ 450	\$ 900	\$1,100
<u>CIAT</u>					
Net projected expense	\$2,250	\$3,000	\$4,100	\$4,550	\$5,050
Prospective income	\$2,250	\$2,450	\$2,450	\$2,450	\$2,450
DEFICIT	--	\$ 550	\$1,650	\$2,100	\$2,600

TOTALS -- FOUR INSTITUTIONS

Net projected expense	\$10,050	\$11,500	\$13,600	\$14,950	\$16,150
Prospective income	\$ 9,200	\$10,000	\$10,100	\$10,100	\$10,100
DEFICIT	\$ 850	\$ 1,500	\$ 3,500	\$ 4,850	\$ 6,050

^{1/}Operating expenses of \$2,200 are \$300 less than anticipated income; difference will be spent for capital equipment.

ESTIMATED COSTS OF PROPOSED NEW INSTITUTES

	<u>Capital Costs</u>	<u>Annual Budget (after build up)</u>
Upland Crops	\$12,000 - \$15,000	\$1,500 - \$2,000
Food Legumes*	\$ 1,000 - \$ 1,000	\$1,000 - \$1,000
Africa- Animal Disease	\$ 3,400 - \$ 3,400	\$1,500 - \$1,500
Livestock Prod.	\$ 5,000 - \$ 5,000	\$2,500 - \$3,000
Irrigation**		
Policy management ***	\$ 100 - \$ 300	\$ 300 - \$ 400
	<u>\$21,500 - \$24,700</u>	<u>\$6,800 - \$7,900</u>

*This assumes that no new center will be established, but that work will be done by existing centers.

**No paper available.

***Lower estimate of capital costs assumes Center will be located at IRRI and use some of that Institute's facilities.

III. December 3, 11:00

This section of the agenda also seems intended primarily for background purposes. It appears to be the most appropriate place, however, to make certain important points concerning AID's position on agricultural research, which apply across the board.

Talking Points. Rational consideration of individual proposals for the establishment of new international centers for agricultural research is difficult in the absence of agreed criteria by which to judge such proposals. We would like to summarize some considerations which seem important to AID, and to state the criteria which we have applied in our preliminary assessment of the several proposals on our Agenda.

We start with the obvious proposition that we are trying to develop a world-wide network of agricultural research with three related objectives: 1) assisting the developing countries to increase the production of food and improve its nutritional value by providing them better materials than their own institutions are able to develop, 2) strengthening these local institutions so that they can make effective use of these materials as they become available, and make progress in their own ability to do useful research, 3) helping the developing countries to guide changes certain to flow from improved agricultural technology in directions which are economically and socially desirable.

The success and fame of CIMMYT and IRRI have tended to establish the international center as the model for all external institutions aimed at supplementing the research capabilities of the LDCs. However, this is a very broad conclusion to draw from a still limited body of evidence. CIMMYT and IRRI have certainly been phenomenally successful; but this success has been limited mainly to two cereal crops on which the institutes focused most of their energies; and their efforts were facilitated by a substantial amount of past research conducted in the developed countries over many years. The auguries for CIAT and IITA are good but it still remains to be demonstrated that a single center starting more or less from scratch to do research on a broad range of crops and animals, as well as on cropping systems will be equally successful.

There is ample evidence that an effective world-wide research network can include a variety of institutions and arrangements. For example, a number of relatively unpublicized institutions in the United States, and other developed countries as well, have demonstrated a capability to do research useful to the developing countries. In some cases, these institutions have supported the Foundation-sponsored centers by providing the results of more basic or "purer" research than these production-oriented institutions are organized to perform. For example, Purdue, Nebraska, the University of California at Davis, Oregon, and the Canadian universities of Guelph and Manitoba have done basic research in support of the wheat, corn and triticale programs of CIMMYT.

In other cases, US-based institutions have themselves assumed some of the functions of international centers of excellence, providing services directly to the developing countries. Some have even created a network of correspondents and experiment stations which cooperate in developing and testing new plant materials. (Examples of such institutions are the TVA fertilizer center, the organizations at North Carolina State for soils analysis, at Purdue for sorghum and high protein corn, at Nebraska for high protein wheat, at Mississippi for seed production and storage.)

The annual reports of the several existing international centers refer in passing to linkages with research in the U.S. and other developed countries and to progress in strengthening the research institutions of the developing countries. We believe that these elements merit greater attention and regret that all except one of the studies proposing new research centers fail almost entirely to consider them. They do not take into account the substantial body of relevant research already performed by institutions in the United States and elsewhere, the contribution these institutions might make to the developing countries, or the extent to which their expertise and on-going research might be used to reduce the capital, staff and budgetary requirements of any new center it may be decided to establish in one of the less developed countries.

These are some of the considerations which have shaped our approach to the proposals for new centers. Our objective is to strengthen the international network in the most effective way possible. We gratefully acknowledge the very great contribution the existing centers have already made and are prepared to accept as a working hypothesis the proposition that these and other centers yet to be established will make contributions of comparable importance in the future. Before agreeing to sponsor the establishment of any new international center, however, the Agency believes that continued support for existing institutions should be assured. We also believe that the proposed new institution should meet the following standards.

1. The research to be conducted by the new center is of sufficient importance to developing countries to justify a priority claim on the financial and scientific resources of aid donors. Moreover, this proposed research will significantly strengthen the world-wide research network.
2. There is a reasonable promise that the enterprise will be successful in achieving results adequate to justify the investment required. This means they must be applicable over relatively broad areas and have a favorable cost/benefit ratio.
3. The proposed research can be most effectively and economically performed at an international center, located in a developing country, and cannot be appropriately undertaken by one or more of the existing centers so located. Moreover, a location for the new center can be found

which is suitable politically as well as geographically, and has the amenities needed to attract and hold scientists from the developed countries.

4. The organization, staffing pattern and program of the proposed new institution reflects recognition of the relevant resources of existing institutions in the U.S. and elsewhere.

IV. December 3, 11:30. Upland Crops

This proposal is effectively summarized in the Agenda.

Talking Points.

1. The objective stated in (a) of this section is one which AID can fully endorse. The problem of improving the lot of the millions of peasant farmers on the dry uplands of Asia is one of the most difficult and pressing in the whole field of development. It may well be, however, that this problem is so location specific that no single institute, wherever located, could do research on the generalized problem of improved cropping systems which would be useful over broad areas. Central Asia is the area where the problem is largest and most urgent, but there is no assurance that an appropriate location for an international center can be found there. Recognizing this difficulty, the paper suggests East Africa or Mexico as alternatives. [No evidence is presented that either location would offer advantages over the arid Southwest of the United States.]

The proposals under (b) indicate that the work of the new institute would, in fact, be concentrated on sorghum, millets, chickpeas and pigeon peas. We frankly doubt that the establishment of a new institute would be the most efficient way to organize research on these crops. We believe that the proper preliminary to a decision on where research on these individual crops should be located is to make an inventory of on-going programs, and consider what place these might have in a general arrangement. The paper lists a number of research programs on sorghum and millets, but it does not indicate whether and how they are related. And it makes no mention at all of the world-wide research on sorghum centered at and coordinated by Purdue University. In our opinion, the possibility of making this effort an effective world-wide program clearly merits consideration. AID would be prepared to consider further strengthening of the central facilities, and supporting staff, if this were found necessary. This might involve the establishment of a consortium of Universities, including one which could work in the arid uplands of the American Southwest. We suggest that similar possibilities for coordinating country or regional programs for the other crops mentioned should be carefully weighed before decisions are made to promote a new institution.

2. We endorse the proposal that IRRI study the feasibility of expanding its program in the manner suggested.

3. We also endorse the proposal for CIMMYT.

V. December 3, 2:30. Food Legumes

The proposals of this paper are effectively summarized in the Agenda.

We believe that the position stated under IV (1) above is valid for these proposals, as well. We agree with the choice of the six legumes designated, but in our view the study does only a part of the job required, before conclusions are reached concerning the location of additional international research on these species. The paper considers the possibility of the existing international centers taking on the job, but it does not attempt to assess the work and resources of other institutions, both in the developed and undeveloped countries, and the possibility that one of these might assume the functions to be assigned an international center.

IICA has done extensive research on dry beans in Latin America.

The British and French have done much with peanuts in Africa and maintain institutes for research in tropical agriculture.

Several American Universities are far advanced in research on soybeans.

The University of Illinois is doing work on a range of grain legumes.

Before we decide to launch a new institute or add a component to existing international institutes, we should assess existing experience and expertise. We should decide whether it might not be more efficient to convert an institution which had already done extensive research on the crop into an international center which would collect world germ plasm, perform the range of research functions described in the report and coordinate a program linking experimental work in the developing countries.

VI. December 3, 3:30. Animal Production in Africa

Background:

The Africa Bureau strongly supports the establishment of two new institutes for research on animal production in Africa, and their position is set forth at some length in the back-up paper at Tab A. They recommend that you press for further study of the proposals for an international animal research center in West Africa leading, within three months, to recommendations concerning objectives, staffing, siting, and financial requirements of such a center. In spite of some reservations about the desirability of studying animal diseases without at the same time attacking other major impediments to livestock development, they also endorse the proposal for an animal disease center in East Africa. This center, they believe, should not be limited, even initially, to research on East Coast Fever and Trypanosomiasis, as proposed in the study, but should study the whole range of animal diseases.

The Technical Assistance Bureau agrees in principle with the African Bureau, that these problems are appropriate for study by international research centers, agrees with the Bureau's views as to the tasks which each of the proposed centers might best undertake. However, in view of the financial problems discussed in II above, and the considerations set forth in III, TAB believes the Agency should take a somewhat more reserved position at this time. This conviction is reflected in the paragraphs below.

Talking Points. AID is in general agreement with the analyses in the two African papers, and believes that International Centers are appropriate institutions to undertake the type of research called for. We would want to see the Center on Animal Diseases given a somewhat broader mandate, clear provision for collaboration between the two Centers, and more specific consideration given to the utilization of African institutions already functioning in this field. But these are matters of detail which could no doubt be readily worked out.

We are concerned, however, about the problem of costs. We suspect that the estimates of capital requirements are on the conservative side. And the estimated annual operating costs of \$4 million would by 1975 increase the anticipated gap between requirements and resources now in sight from \$6 million to \$10 million - close to 70 percent. Before making a definite decision to proceed with the establishment of these institutes, we need a clearer idea of what the total resources available to support the centers will be, and may also need to make some judgments about priorities among desirable new initiatives. In our view, these are desirable, and we hope they will be kept under active consideration.

VII. December 4, 9:30. Improved Productivity of Irrigation Schemes

The discussion paper referred to in the Agenda has not been received, and we have only the brief Agenda notes on which to base comments.

Talking Points. We note that the recommendations are for programs for research and training in water management for crop production, which together with the formulation of the activities to be undertaken, implies that the establishment of additional international centers may not be required. We agree that the program of study and training proposed would be very useful.

We would favor the initiation of the proposed feasibility study, particularly since the proposal is made in terms fully consistent with the points emphasized in our comments under Section III: that is, the study would take account of relevant research already performed by existing institutions and the extent to which the capabilities of these institutions might be utilized in effectuating the program. AID would be prepared to consider providing support to suitable U.S. institutions whose cooperation in the program would be helpful.

We strongly endorse the proposal that research in crop-water-soil relationships be undertaken at existing or future crop-oriented institutes.

VIII. December 4, 10:30. Agricultural Policy Management

Background. The objective of the proposal as formulated in the Agenda is somewhat broader than that stated in the Agenda paper, whose author frankly concedes that his views are not shared by Ford Foundation staff members familiar with Asia. The Agenda recommends a network of national institutions "to engage in policy oriented research needed by officials to plan and manage agricultural development." The Study, on the other hand, would limit work initially to "production-oriented questions", which it defines as production, marketing and prices.

Talking Points: We have found this a stimulating paper, which presents a good bit of interesting information we haven't seen elsewhere. There is no doubt that the subject it addresses is important and that it merits much more attention than it has so far received.

We agree that if the results of research on policy problems is to be of any practical utility, it must be recognized by Government officials as germane to their problems. They will not, like a new cereal variety which triples yields, automatically command attention. We agree, also, that the institutions and scientists of the developing countries should themselves do as much of this policy-oriented research as possible; and that coordinated studies which yield data comparable among several countries are likely to prove most valuable.

We find ourselves more in agreement with the position ascribed to the staff of the Ford Foundations, than with that of the study, concerning the scope of the problems which need to be considered. In AID's own work, we are concerned with the "equity set" of problems, including employment and income distribution. This is a reflection not only of AID's concern, but that of the Congress, as well. Title IX of the Foreign Assistance Act specifically directs the attention of the Agency to such questions.

As to the specific proposals of the paper for addressing these problems in Asia, because of the very brief time available for considering them, we have only tentative and preliminary views.

Our preliminary reactions are:

It is desirable to encourage cooperative effort among the social scientists, and the relevant public and private institutions of the region.

Given the considerable number of organizations the study lists as already operating in the area, we would want to give further consideration to the possibility of one or the other (or several) of these assuming the functions the study would assign to a new central staff functioning in a fixed facility.

It is clear that a great deal more competence for research of this sort needs to be developed in most of the countries of the area. This requires training, and, where it is acceptable, the guidance of experienced social scientists from the developed countries - particularly, agricultural economists. It should be possible to further these objectives through existing international and national assistance programs.

It will probably be desirable to convene regular meetings of social scientists of the area, similar to that recently sponsored by the Agricultural Development Council.

In view of the lack of agreement as to just what policy-oriented research the Governments of the area consider relevant to their planning and management of agricultural development, it might be useful to convene a conference of Agricultural Ministers to discuss the question. Among the institutions which could appropriately sponsor such a conference are the FAO, IRRI, ECAFE, the Asian Development Bank, or the Development Center of the OECD.

Conference of Agricultural Representatives of Assistance Agencies

Villa Serbelloni, Bellagio, Italy

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BENTLEY, C. F. - (Soil Scientist) Agricultural Consultant for the Canadian International Development Agency, and Professor of Soil Science, University of Alberta, Canada. Formerly taught at the Universities of Minnesota, Saskatchewan, and Alberta. Overseas he spent one year in Ceylon on a soil conservation training program; three months in Thailand doing a feasibility study for what is now the University of Northeast; two months in India leading a Canadian team seeking potential projects for assistance in agriculture; and in 1968-69 for four months in the Caribbean, East Africa, and Southeast Asia for CIDA. Interests: the "dirty hand approach" to agricultural education and research in the developing countries.

BERNSTEIN, JOEL - (Economist) Assistant Administrator for Technical Assistance, AID, Washington, D.C. He has served from 1958-67 as Mission Director in Liberia, Nigeria, and Korea, and for three years as Chief of the African and European Staff of AID. His career began when he joined the Marshall Plan as a financial economist with the Economic Cooperation Administration's Special Mission to the United Kingdom. He was also with the Mutual Security Agency in Paris and the Mission in Italy as Special Assistant for Operations to the Director. He spent four years in Washington as Chief of the European and African Program Staff for the International Cooperation Administration and at the Foreign Service Institute. He currently has global responsibility for sector dynamics and development strategy and coordination with other organizations doing related work.

COX, MILO L. - (Agronomy-Botany) Special Assistant for Agriculture, AID, Department of State, Washington, D.C. Has occupied the following positions with AID and its predecessor agencies: Agronomist, pasture production specialist, Chile, 1957-60; Deputy Food and Agriculture Officer, Bolivia, 1960-62; Rural Development Officer, Uruguay, 1963-65; and Chief, Rural Development Division, Latin American Bureau, Washington, D.C., 1965-69.

CRAWFORD, SIR JOHN - (Economist) Consultant to the World Bank on agricultural matters and research development in Asia and the Pacific, and Vice-Chancellor, The Australian National University, Canberra. Formerly Advisor to the Rural Bank of New South Wales; Director of the Australian Bureau of Agricultural Economics, 1945-50; Secretary, Australian Department of Commerce and Agriculture, 1950-56; Secretary, Department of Trade, 1956-60; Director of Research, School of Pacific Studies, Australian National University, 1960-67. Interests: policy making the developing countries.

EDWARDS, JOSEPH - Agriculture Projects Department, International Bank for Reconstruction and Development, Washington, D.C. Currently responsible for exploring the role of the Bank in agricultural research around the world. Formerly Director for 23 years of Breeding and Production and Scientific Adviser at the Milk Marketing Board of England and Wales; was for 17 years a Governor of the Royal Veterinary College, London; now a Governor and Council member of the Royal Agricultural Society of England; and a Director of a ranching hill sheep and cattle company in Glenlochay, Scotland.

ERICSSON, GÖSTA - (Agronomist) Head, Division for Agricultural Development, Swedish International Development Authority, Stockholm, and Head, Education Division, Swedish National Board of Agriculture. Formerly agricultural teacher and advisor in different parts of Sweden; four years as senior agricultural officer in an agricultural province in Southwest Sweden. Since 1958 he has been in charge on a national level for the horticultural, agricultural, and home economic education up to the university level. He investigated the possibilities of Swedish aid in agriculture in Zambia and took part in a preparatory mission for a FAO/SIDA integrated development project in Kenya. Interests: rural development and nutrition.

EVANS, L. J. C. - (Tropical Agriculture) Director, Agriculture Projects Department of the World Bank, Washington, D.C. Formerly teacher and investigator at the Imperial College of Tropical Agriculture, Trinidad, 1939-50; agricultural adviser with the Commonwealth Development Corporation, U.K., 1950-61. Currently concerned with the identification, appraisal, and preparation of projects in some 70 developing countries. The department is also concerned with the evaluation of the agricultural sector of the countries in which the Bank group lends. Interests: especially in project development, financing of agricultural development and in economic justification of projects and the extension of scope and range of Bank's agricultural activities, including support for agricultural research.

FOURNIER, F. - (Soil Conservationist) ORSTOM International Relations Service, and in charge of Agronomy at ORSTOM, Paris. Experience mainly in soil conservation: soil studies with their rational use; application of soil conservation methods to the tropical zone, mainly Africa. Interests: soil erosion, solids transportation by water, soil conservation, soil management.

GOLDSCHMIDT, ARTHUR - (Economist) Senior Consultant to the Director of the UN Development Program, New York. Formerly U.S. Ambassador to the UN for Economic and Social Affairs, 1967-69. In 1933 he joined the Federal Relief Agency in Washington. He subsequently worked for the Senate Committee on Interstate Commerce; the National Bituminous Coal Commission; the Public Works Administration; and the National Power Policy Committee. In 1944 he was appointed Director of the Division of Power of the Department of the Interior. He has been a member and adviser of various commissions for UNESCO and ECOSOC. In work with the UN he has visited the majority of the developing countries in Asia, the Middle East, Africa, and Latin America.

HARDIN, LOWELL S. - (Agricultural Economist) Program Officer for Agriculture, Ford Foundation, New York, since 1965, and a member of the boards of trustees of CIMMYT and CIAT. Formerly Professor of Agricultural Economics, Purdue University, 1943-65. At the Ford Foundation he works with agricultural programs in South and Southeast Asia, Africa, the Middle East, but most intensively in Latin America.

HOPPER, W. DAVID - (Agricultural Economist) Associate Field Director, Indian Agricultural Program, Rockefeller Foundation, New Delhi. Over a decade of agricultural development policy in India and Asia. Currently: teaching and research on Indian agricultural development at the Indian Agricultural Research Institute, New Delhi, and consultant on research administration to the Council on Agricultural Research. Interests: agricultural development policy and planning, particularly agricultural research policy and the development of rural infra-structure and service institutions.

HSIEH, S. C. - (Agricultural Economist) Director of Projects Development, Asian Development Bank in the Philippines since 1967. Formerly Senior Economist and Chief of Rural Economics Division of the Chinese American Joint Commission on Rural Reconstruction (JCRR) and concurrently Executive Secretary of Agricultural Planning Committee of the Economic Stabilization Board of the Chinese Government, 1957-61; Secretary General of JCRR, 1961-65; part time Professor of Agricultural Economics, National Taiwan University, 1951-60; and Visiting Professor of Agricultural Economics, College of Agriculture, University of the Philippines, 1965-67. At the Asian Development Bank he works with the 17 member countries studying their governments' attitude, policy, and foreign aid operation. Interests: agricultural policy and economic development in general.

JIMENEZ, LEOBARDO - (Agricultural Communications and Economics) General Coordinator of the Puebla Project (CIMMYT and the Graduate College of Agriculture), and Professor and Head of the Agricultural Communications Branch, Graduate College, National School of Agriculture, Chapingo, Mexico. Experience: participant and investigator for agricultural production in tropics and temperate zones, especially for small farms in Latin America. Interests: agricultural communication and rural change through agricultural production programs.

MELVILLE, A. R. - (Zoologist) Chief Agricultural Adviser, Ministry of Overseas Development, London. In 1936 he was appointed Entomologist (coffee pests) in Kenya. Subsequently he became Director of Coffee Research, then Chief Agricultural Research Officer, and Director of Agriculture in Kenya. He is now adviser on all aspects of ODM's agricultural and research programs. Direct geographic responsibilities include Kenya, Uganda, Tanzania, Somalia, India, Ceylon, Pakistan, Thailand, Laos, Nepal, West Indies, Bolivia, and with international technical matters, e.g. FAO. Interest: organizational and institutional requirements for agricultural development and research; acquisition of new technical knowledge and transmission to the farmer; special development projects in developing countries; rural development, e.g. social change, land tenure, rural employment, land use, including ecological and conservation aspects; and effective liaison between aid agencies of all kind.

OHTO, MOTONAGA - (Political Scientist) Executive Director, Overseas Technical Cooperation Agency (OTCA), Tokyo. Formerly with Japanese Ministry of Agriculture and Forestry from 1938-58; FAO liaison officer for Asia and the Far East, Rome, 1958-61; and Deputy Regional Representative FAO, Bangkok, 1961-62. Currently planning and implementation of technical assistance programs in agriculture of the Japanese Government for South and Southeast Asia mainly. He has served as leader of Japanese government teams to Cambodia, Thailand, Indonesia, and Ceylon in 1966, and for a short time in 1968 was a consultant for the Ford Foundation to Nepal and IBRD Team to Thailand. Interests: increased productivity of small farms.

ORAM, P. A. - (Agronomist) Assistant Director of Policy Advisory Bureau, FAO, Rome. Formerly investigator at the National Institute of Agricultural Botany, Cambridge; Head of Agricultural Department, Borax Consolidated Ltd., London; Director of Research and Deputy Chief of FAO Mission, Tripoli; Manager and Senior Agriculturalist, UN Special Fund Economic Survey of the Peloponnesus, Greece; Agriculturist, FAO/IBRD Cooperative Program, FAO, Rome; Agriculturalist, Central Executive Unit and Team Leader, Asian Regional, Indicative World Plan, FAO, Rome. Interests: crop agronomy with particular reference to the development and improvement of the high yielding varieties of seed; economic problems of agriculture in developing countries, especially the study of irrigation and mechanization programs.

PINDER, FRANK E. - (Agricultural Economist) Special Adviser to the Executive Secretary, UN Economic Commission for Africa (ECA), Addis Ababa, since 1968. Served in the agricultural field in Africa since 1944 and was Director of the SAID Mission in Ghana from 1964-67. He is adviser to ECA/FAO Joint Agriculture Division on socio-economic matters pertaining to agricultural development in Africa and serves in a similar capacity to the Executive Secretary on agriculture and other related matters. Work is conducted in 42 ECA member countries of Africa and occasionally North America and Europe. Interests: agricultural education, agricultural economics (farm management).

WOLF, ALFRED C. - (Economist) Program Advisor to the President and Director, Social Development Division, Inter-American Development Bank, Washington, D.C., since 1961. Formerly Director, Program Staff and Executive Assistant to Secretary, Department of Interior, 1947-53; Research Director, Harvard-Pakistan Planning Board Project, Harvard University, 1953-55; Assistant Director, Overseas Development Program and Program Director for Latin America and the Caribbean, Ford Foundation, 1955-61.

WORTMAN, STERLING - (Plant Breeder) Director for Agriculture, The Rockefeller Foundation, New York, since 1966. Corn breeder, Mexican Agricultural Program, Rockefeller Foundation, 1950-54; Plant breeder, Pineapple Research Institute, Hawaii, 1955-60; Assistant Director, International Rice Research Institute, Philippines, 1960-64; and Director, Pineapple Research Institute, Hawaii, 1964-65. Currently directing Rockefeller Foundation agricultural programs in Latin America, Africa and Asia. Interests: increased agricultural production in the developing nations.

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Conference of Agricultural Representatives of Assistance Agencies

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February 3 - 6, 1970

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Bellagio (Como)

Conference on Agricultural Development
2 to 7 February 1970

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