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S - AGRICULTURE AND RURAL DEVELOPMENT 1978/80 VOL. VIII

FORM NO. 635
(6–77)

CLOSE – OUT SHEET

This file is closed as of Oct. 31, 1979.

For further correspondence, please see Vol. IX.

RECORDS MANAGEMENT SECTION

5-AGRIC & RURAL DEVELOP.

ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE

ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100 - ROME Cables: FOODAGRI ROME Telex: 61181 FOODAGRI Telephone: 5797

In your answer please quote

Ref. UN 10/65 Gen.Ext.

OCT. 31 1979

Dear Mrs. Boskey,

Please refer to my letter of 28 June 1979 suggesting that your Organization designate a focal point for the ACC Task Force on Rural Development.

I am attaching herewith a consolidated list of focal points. This has been prepared on the basis of the replies received so far from the various organizations and programmes.

Yours sincerely,

Declan J. Walton
Director
Office for Inter-Agency Affairs

Mrs. Shirley Boskey
Director
International Relations Department
International Bank for Reconstruction and Development
1818 H Street, N.W.
Washington, D.C. 20433
U.S.A.

cc: Mr. T.J. Davies
Chief, Rural Operations Review and Support Unit
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1818 H Street, N.W.
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ACC TASK FORCE ON RURAL DEVELOPMENT

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as at 12 October 1979

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S. Rural Dev. T. Davis

ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100-ROME Cables: FOODAGRI ROME Telex: 61181 FOODAGRI Telephone: 5797

file ACC

In your answer please quote

Ref. UN 10/15 Gen. Ext./Int. 6th Meeting

OCT. 31 1979

Dear Mr. Christoffersen,

Ad Hoc Meeting of the ACC Task Force on Rural Development
FAO, Rome, 27-28 September 1979

Please refer to Prof. N. Islam's letter of 5 October 1979 with which an advance copy of the report of the above-noted meeting was sent to you.

IFAD, after reviewing the report, has informed us that to reflect more comprehensively the proceedings of the meeting, the following sentence should be added at the end of its paragraph 12 on page 3:

"It was understood that not all members of the Task Force would necessarily be involved in this evaluation".

Yours sincerely,

Rafael Moreno
Director
Human Resources, Institutions and
Agrarian Reform Division

Mr. L. Christoffersen
Assistant Director
Rural Development and Nutrition
Agriculture and Rural Development Department
International Bank for
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1818 H Street N.W.
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yellow
S. Agriculture

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

October 31, 1979

Professor Neville Dyson-Hudson
R.D. 2, Box 63
Marathon, New York 13803

Dear Neville:

In response to your query on funding for travel from East Africa to the Bank in order to present your long awaited seminar paper on "Organizational and Behavioral Factors in East African Livestock Development," I have discussed the issue with Miss Kolan of Personnel here in the Bank and with Michael in the Netherlands. They suggest that we proceed as if some means for funding your travel could be worked out once we have the paper in hand.

Michael seems confident that with your paper firmly in our possession -- complete with valuable references to your 1968 Bank experience, and in accordance with the schedule indicated in my letter of October 25 (an outline by November 15 and the completed paper by December 31) -- a way can be found to arrange for its presentation. Miss Kolan has the impression, from earlier conversations with you, that the paper may already be partially written. Perhaps that will lighten your task.

We would also like to consider your paper for inclusion in the compendium of seminar papers, tentatively entitled PROJECTS FOR RURAL DEVELOPMENT; THE HUMAN DIMENSION. We are planning for publication through the Johns Hopkins University Press. For your guidance in manuscript preparation, I am including a suggested format, a style sheet, and a tentative Table of Contents.

Incidentally, Gunnar Sørbø of the University of Bergen will be presenting a seminar paper entitled "Irrigation Agriculture and Pastoralism in the Sudan," here at the Bank in late January.

Unless I hear from you to the contrary, Neville, I will assume that this arrangement is satisfactory and that I can continue to look forward to seeing your outline by November 15th.

It will be good to see you here.

Sincerely,

Peter B. Hammond

Enclosures

NRIC

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

S. Agriculture

OFFICE MEMORANDUM

TO: Mr. Hendrik van der Heijden, Chief, RMB DATE: October 30, 1979

FROM: W.P. Panton, Senior Agriculturist, RMB

SUBJECT: RRIM Planters Conference 1979,--Kuala Lumpur, October 15-17

1. Re Price's telex 1064 dated September 21, I attended the above conference as instructed and have pleasure in submitting this summary of proceedings.

2. The general tone of the conference, both on and off the platform, reflected the current confident mood of the Malaysian natural rubber industry in its ability to complete with oil-based synthetics and win a larger share of the total elastomer market. Contributing to this mood was the fact that the International Natural Rubber Agreement (INRA) on price stabilization, which provides for a buffer stock of 550,000 metric ton and is aimed at keeping the price at a range between 150 and 270 Malayan cents/kg had been concluded the previous week. A further shot in the arm was provided to Malaysian smallholders earlier in the month when the Malaysian Government announced an increase of per acre Mal.$300 (from $900 to $1,200) in replanting grant to smallholders with less than 10 acres, and an additional increase of $100 to holders of less than 5 acres. Reduced rates of export duty for natural rubber, announced by the Malaysian Minister of Finance in his 1980 budget presented to Parliament the day after the conference closed have since provided a further stimulus to the industry.

... 1 3. There were about 850 participants. About 200 from overseas, representing 15 countries, including a massive 63 person delegation from Indonesia and surprisingly large groups of 18 from Brazil and 15 from the Philippines. Foreign participants were charged registration fees of Mal.$300--double that of Malaysian residents.

... 2 4. The Mal.$300 bought only an 8 page program and 16 pages of abstracts in English. Proceedings, which will include the full papers and key addresses, are to be published early in 1980 and will cost an additional Mal.$35.

5. Buoyant addresses by Dr. Ani bin Arope, Director, Rubber Research Institute of Malaysia, and Primary Industries Minister Dato Paul Leong marked the opening session.

... 3 6. Dr. Ani drew attention to the differences between the biological potential yields of modern clones under ideal conditions (2 to 3 times current producer averages); the high yields of over 3,000 kg/ha even

without stimulation reported by the "developed sector" (the current euphemism for the estate industry); and the much lower averages recorded from smallholdings, where even the best do not produce in excess of 1,500 kg/ha. He described the closing of this yield gap as the greatest challenge facing the researchers. He described the three primary factors which he considered responsible for this gap--(1) physico-environmental constraints which are largely uncontrollable for all practical purposes; (2) physical and biological constraints, which are at least partly controllable through improved technologies and management practices; and (3) socio-economic constraints which especially affect the smallholders, and which are currently being given particular attention by the Institute. He stressed the importance of appropriately trained local research personnel and indicated that their training and development would have a high priority, which deserved the continuing support of the industry.

7. The Minister urged the industry to increase production in order to take advantage of market opportunities forecast for the next decade and promised a dynamic production policy designed to unite the private and public sectors in developing the remaining areas of land suitable for rubber. This policy, details of which were not provided, would be in conformity with the New Economic Policy and would be acceptable to State Governments. He mentioned the emerging problems of scarcity and high cost of labor, and pollution control of rubber processing wastes. He also drew attention to the opportunities for domestic manufacture of rubber goods for export.

8. The papers presented at the six working sessions were of extremely variable quality. They covered a wide range, including economics of production, exploitation systems, clonal material improvements, nursery and field practices including planting densities and underplanting techniques, chemical weed and disease control, and factory effluent treatment and use. Highlights from the more interesting or useful papers are summarized below.

9. Paper No. 1 compared the economics of producing rubber, oil palm and cacao/coconuts under a variety of soil/topography situations and commodity price ranges. The authors concluded that at times of low prices for all commodities, rubber is the more profitable crop under all situations studied, but that other crops are more profitable at times of high commodity prices, except in hilly areas and in areas with distinct dry seasons.

10. Paper 2 described Federal Land Consolidation and Rehabilitation Authority (FELCRA) experiences in rehabilitating mismanaged smallholder schemes planted in the late 50's and 60's, and claimed success in organizing group farming operations in which individual owners assume specialized roles--tapping, weeding, processing, under FELCRA management. Individuals are paid estate industry labor rates for the job and receive a share of profits on sales after deduction of expenses.

11. Paper 3 described similar experiences on Federal Land Development Authority (FELDA) schemes to paper 2 above. The block system, as it is called, allows for labor specialization and spreads risks from wind damage, etc. It also reduces incidence of over-tapping.

12. Paper 5, based on a research thesis, compared five clones from an economic viewpoint. Economic evaluation showed PR 255 to be the most profitable, due mainly to its short immaturity period.

13. Paper 6, also based on a research thesis, suggested that higher density planting (600-750 tree/ha) giving tappable stands of 401-500 tree/ha is most profitable for independent smallholders, while planting at rates between 500 and 600 tree/ha, giving tappable stands of between 350 and 400 tree/ha would be best for FELDA settlers. See also papers 17 and 18.

14. During the discussion at the end of session 1 an articulate representative from the smallholder sector received the loudest and longest ovation of the conference when he suggested that FELDA, FELCRA and RISDA were unnecessarily duplicating each others roles. The situation was not only confusing to the smallholders, but was undesirable in view of the scarcity of skilled manpower in the public services. He suggested, quite forcibly, that some "amalgamation" should be carried out.

15. Paper 7 presented the results of a study which showed that after cessation of ethephon stimulation during a 4 month period coincident with the wintering season only a slight reduction in yield was apparent as compared with continuously stimulated tasks.

16. Paper 8 compared East coast of West Malaysia results of intensive daily tapping systems with a two month complete rest in the monsoon compared with standard S/2 D/2 year round tapping. Yields under intensive systems exceeded control and were comparable to West coast levels (which can be 30% higher than East coast) on comparable clones.

17. Paper 9 described the "micro-X" system--a promising system involving 9 or 10 days of puncture tapping along the groove of a tapping cut, followed by 3 days of conventional tapping to remove the punctured bark. Has obvious labor and bark-saving advantages.

18. Paper 10 presented results from 3 years of puncture tapping. The trials gave 20% yield increase and 90% increase in yield per tapper as compared with S/2 D/2 controls.

19. Paper 11 described several ingenious tools, spring loaded manual and battery-powered, which are being developed as aids to improve productivity of puncture-tappers.

20. The discussion at the end of the second session brought out the fact that it is still too early to recommend puncture tapping systems for commercial application in spite of obvious labor cost-saving

advantages. Main areas of concern include the problem of bark burst, due to bleeding between bark and wood (the spiral injector power tool described in paper 10 was claimed to be particularly good at reducing incidence of this form of bark damage); and the much higher percentages of scrap due to late drip from puncture tapping.

21. Paper 12 was a progress report on selection of promising mother trees from large seed gardens for use in future breeding programs.

22. Paper 13 defined the secondary quality characteristics being sought through the Prang Besar breeding program--growth vigor, bark quality, disease and wind resistance, intrinsic properties of latex and timber yield potential. PB 200 and 300 series clones in the RRIM current planting recommendations list were described.

23. Paper 14 drew attention to the poor germination quality of most imported legume seeds. Much of this is due to hard seed, and acid treatment prior to sowing can increase germination considerably, and is said to be very worthwhile. The authors recommend introduction of a seed certification scheme and advocate trials to determine domestic seed production possibilities. Current imports of legume seeds to Malaysia are valued at Mal.$15 million annually.

24. Paper 15 presented evidence of the effectiveness and cost-saving advantages of pre- and post-emergence harbicide systems to cut down on labor-intensive manual weeding and spot spraying.

25. Paper 16 showed how quality of establishment of budded stump plantings could be improved by dipping stumps in an indole butyric acid slurry to encourage root development prior to planting. The treatment was shown to be extremely cost effective, resulting in more uniform stands and fewer replacements.

26. Papers 17 and 18 presented data on planting density trials. Paper 17 concluded that after 7 years in production RRIM 600 gave the highest yield at planting densities between 741 and 1,067 tree/ha, while RRIM 701 proved best at between 557 and 741 tree/ha. The author of paper 18 wisely confined himself to concluding that a planting density of less than 296 tree/ha is unlikely to be economically sound. See also paper 6. The question of optimum planting densities obviously requires much more systematic study for conclusive answers.

27. Papers 19 and 20 described similar techniques for underplanting of rubber in order to reduce the non-productive period of the field, either by transplanting budded seedling stumps into the field during the main planting season and delaying poisoning and felling of the old rubber until the following dry season, thus obtaining an additional 6 to 8 months productivity from the old stand, as has been done successfully on 2,000 ha of commercial planting on hilly land in Northwest Malaysia, or by field budding on large rootstocks under old stands prior to feeling. Damage of replants due to tree fall is minimal on sloping land due to protection afforded by the upper edges of terraces. Cost-saving advantages are substantial and obvious.

28. Papers 21, 22, and 23 all presented chemical-based weed or disease control techniques which offer cost-saving advantages over existing labor-intensive systems. In each case the financial advantages were quantified.

29. Paper 25 described design criteria for a 3 pond system for treatment of latex factory effluent, and presented effluent analysis results to illustrate the quality improvement through to the point of discharge.

30. Paper 26 showed how rubber factory effluent could be used to advantage when discharged into standing rubber via a pump and inter-row channel irrigation system. Improvements in yield and savings in fertilizer (N and K) were apparent after 2 years of operation, but the possibility of a longer-term nutrient imbalance must be guarded against--a point which was much debated during the subsequent discussion.

Closing Address

31. Dr. T.S. Sekar, Controller of Rubber Research, Malaysian Rubber Research and Development Board, concluded the conference with a rousing address in which he pointed out that the threat from the synthetic rubber industry had evaporated, and that complementarity rather than competition between natural and synthetic was now the order of the day. As for Guayule, he described it as a miserable plant which could never be a threat to natural rubber.

32. All producers, and particularly the smallholders, must realize that with competition now much reduced, the opportunities for production increases are enormous, given available modern techniques. Confidence in the future of the natural rubber industry must be created in the minds of every producer. The conference ended on this euphoric note.

General Comment

33. From my own observations and from talking to other participants, I concluded that this was one of the better Planters Conferences of recent years.

34. The emphasis in many of the papers on labor-saving techniques and other cost-cutting systems or devices was particularly marked, and the extent to which the authors went out of their way to quantify the expected savings was commendable, and illustrated the importance attached to practical and economic values by investigators from the plantation and research sides alike.

35. It is interesting to note that what has previously been considered a purely national get-together of Malaysian planters and research scientists is now becoming a truly international gathering. I expect this trend to continue, to the great advantage of the international natural rubber industry.

cc: Messrs. Price, Gray

WPP/aa

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

Non-Regional file

OFFICE MEMORANDUM

TO: Mr. D.C. Pickering (Assistant Director, AGR/CPS) DATE: October 29, 1979

FROM: F.L. Hotes (Irrigation Adviser, AGR/CPS)

S-agric & R.D.

SUBJECT: Attendance at Expert Consultation on Drainage, Design Factors at FAO Headquarters, Rome, Italy, 10/22-10/26/79

1. During the five-day period noted above, I was an active participant, along with 15 others, in subject consultation. The topic was limited to subsurface drainage of irrigated land, primarily by means of tile drainage. There were four experts from different USA agencies; two from The Netherlands; two from UK; one each from Egypt, Iraq and Syria; two from FAO Field Offices; two from FAO Hdqtrs; and myself. A complete list is attached as Annex 1. All were invited primarily to present their personal experience and judgements, and were considered to not be speaking for their organizations.

2. A questionnaire (Annex 2) had been mailed to each last March, based on numerous questions raised time and again in the field. FAO had become increasingly concerned that on many occasions developing countries seemed to be receiving conflicting advice on many of these questions from different Government and private drainage consultants. This had resulted in confusion and uncertainty, in many cases, as to what advice to follow. It was hoped that a panel of experts could reconcile most of the key questions and provide their consensus recommendations.

3. All the participants, except myself, submitted answers to the questionnaire last May. These were compiled into draft statements on each question by FAO and were used as the basis for the consultation discussion. Each was discussed. Two or three panelists for each question were then assigned the task of redrafting the answers in accordance with the discussions. The redrafts were reviewed in plenary session by all, and further changes made. FAO will do the final editing and mail to all participants by February 15, 1980, for comments within 30 days. The final output will be an FAO Bulletin to be distributed about the end of Calendar 1980.

4. When the February 15th draft is received I propose to distribute copies to all Bank irrigation staff concerned with drainage. Mr. Peter Dieleman of FAO, Chairman of the consultation, will be a speaker at the Bank Agricultural Staff Training Session next January and will give a preliminary report.

5. The output should be of considerable value to the Bank and its Borrowers. The emphasis here was on design factors. An additional paper on feasibility study requirements for drainage also is believed needed. The Bank may wish to ask a consultant to develop guidelines for such studies at a future date.

FLHotes:rm
Attachments

cc: Messrs. Baum, van der Tak, Rajagopalan (CPS); Yudelman, Collins, Peters (AGR/CPS)

EXPERT CONSULTATION ON DRAINAGE DESIGN FACTORS

Rome, 22-27 OCTOBER 1979

LIST OF PARTICIPANTS

(as of September 1979)

EGYPT	M.H. AMER	Drainage Research Institute, Cairo
IRAQ	MUDHAFFER A-K. ISMAIL	State Organization for Soils and Land Reclamation, Baghdad
NETHERLANDS	J.H. BOUMANS	Euroconsult NV, Arnhem
	C.L. VAN SOMEREN	International Institute for Land Reclamation and Improvement, Wageningen
SYRIA	A. ILHAMY AMIRY	General Administration for the Development of the Euphrates Basin, Aleppo
UNITED KINGDOM	W. PEMBERTON	Sir M. MacDonald & Partners, Cambridge
	D. RYCROFT	National College of Agricultural Engineering, Silsoe
USA	J. CHRISTOPHER	US Bureau of Reclamation, Denver, Colorado
	W.R. JOHNSTON	Westlands Water District, Fresno, California
	P. KOLUVEK	Soil Conservation Service, Portland, Oregon
	L.S. WILLARDSON	Utah State University, Logan, Utah
WORLD BANK	F. HOTES	World Bank, Washington
	.....	
	.....	
FAO	A. ARAR	Regional Office for the Near East, Cairo
	M.S. ABDEL DAYEM	Pilot Project for Soil Improvement and Management, Suweira
	P.J. DIELEMAN	FAO, Rome
	D.W. WESTCOT	FAO, Rome

EXPERT CONSULTATION ON DRAINAGE DESIGN FACTORS

Rome, 22 - 27 October 1979

INFORMATION ON THE MEETING AND THE QUESTIONNAIRE

1. THE SUBJECT

The subject of the Consultation is sub-surface drainage of irrigated land. Of prime concern are on-farm problems as they are encountered in the planning and design of field systems. Most of the problems to be discussed during the Consultation are being raised time and again, particularly in countries that have only recently initiated large-scale drainage programmes. Though the outcome of the Consultation will be applicable worldwide it is these countries, with a concentration in the Near East and North Africa, that should be kept in mind during the discussion.

The subject may be further explained and, perhaps, narrowed down by the following:

- the areas to be drained are assumed to be flat lands, or their slopes are so small that they can be considered flat lands
- the soils to be considered are mineral soils having a wide range of textural classes and of water transmitting qualities. However, unless specifically stated otherwise, extreme types of soil, such as very shallow soils, coarse sands or heavy, highly swelling, sodic clays - which may require specific drainage solutions - will be left out of the discussion
- the climate is warm and dry and agricultural production depends largely on the supply of irrigation water
- irrigation water is available to cover crop and leaching needs
- drainage is primarily effected by pipe drains which flow out into open collector drains or buried collector pipes. Pipe drains are installed by pipelaying machines
- crops are primarily field crops; however other crops are to be considered where appropriate.

EXPERT CONSULTATION ON DRAINAGE DESIGN FACTORS

ROME, 22-27 OCTOBER 1979

QUESTIONNAIRE

A. DRAINAGE INVESTIGATIONS

A.1 SOIL HYDRAULIC CONDUCTIVITY

A.1.1 HOW USEFUL ARE LABORATORY TESTS OF HYDRAULIC CONDUCTIVITY FOR DRAINAGE DESIGN PURPOSES, PARTICULARLY AS CONTRASTED TO IN SITU MEASUREMENTS?

In your answer:

- specify the conditions that influence your judgement, such as soil type, soil layering, anistropy, depth of soil to be sampled, cost factors, and how they influence it.

A.1.2 WHAT FIELD METHODS OF MEASURING OR OF OTHERWISE DETERMINING HYDRAULIC CONDUCTIVITY DO YOU CONSIDER BEST, AND UNDER WHAT CONDITIONS?

In your answer:

- consider primarily large-scale development projects
- consider in particular relation to cost, reliability and variability
- include a brief description of method only if not available in literature.

A.1.3 HOW MANY HYDRAULIC CONDUCTIVITY TESTS - WHETHER IN SITU, LABORATORY OR BOTH - ARE NEEDED PER UNIT AREA, AND AT WHAT DEPTHS IN THE SOIL ARE THESE TO BE MADE?

In your answer:

- indicate how your selection is related to soil type, soil anistropy, soil layering, type and stratification of deeper subsoil, as well as to the availability of soil survey maps.

A.1.4 HOW DO YOU USE INFORMATION DEVELOPED ON HYDRAULIC CONDUCTIVITY IN DETERMINING DRAIN SPACINGS?

In your answer:

- specify how you will handle conductivity rates that change with wetness or time.

Please note:

Most soils, particularly in alluvial areas, are layered, the layers being of variable thickness and horizontal extent, even within the area of a few drains. Rates of hydraulic conductivity in such soils will be highly variable as well. Moreover, in swelling soils they are likely to be related to soil moisture content and thus variable with time. The problem is how to obtain values that may be considered representative of areas that are large enough from a practical (drain installation) point of view.

A.2 DRAINABLE POROSITY

A.2.1 HOW DO YOU, IN PRACTICE, DETERMINE THE DRAINABLE POROSITY OF THE SOIL IN THE ZONE OF THE FLUCTUATING WATER TABLE?

Please note:

Drainable porosity, also referred to as specific yield, is the amount of water draining out of a saturated soil under gravity force.

A.3 HEAVY CLAY SOILS

A.3.1 SUGGEST STANDARDS FOR HYDRAULIC CONDUCTIVITY RATES AND OTHER SOIL CHARACTERISTICS, IF ANY, BY WHICH THE TECHNICAL AND ECONOMIC DRAINABILITY AND RECLAIMABILITY OF THESE SOILS CAN BE ASSESSED AND CLASSIFIED

Please note:

- Heavy clay soils are considered to be characterized by low hydraulic conductivity, which may or may not further decrease with depth and with (even slight) swelling. They are difficult to drain and leach effectively and economically. Decisions to undertake their drainage need a rational basis.
- This question refers primarily to crops other than rice.

A.3.2 WHAT PRACTICAL METHODS DO YOU SEE TO IMPROVE THE STRUCTURE OF THESE SOILS, OR OF SPECIFIC TYPES OF THESE SOILS? IN THE LATTER CASE, HOW DO YOU CHARACTERIZE THESE TYPES?

A.4 NATURAL DRAINAGE AND IN-SEEPAGE

A.4.1 HOW CAN NATURAL DRAINAGE AND IN-SEEPAGE RATES BE ESTIMATED?

In your answer:

- emphasize simple and rapid observations or indications that provide information on the magnitude of the flow rates.

B. DESIGN CRITERIA AND PARAMETERS

B.1 WATER TABLE DEPTH

B.1.1 WHAT DEPTH OF WATER TABLE OR DEPTH RANGE OF WATER TABLE FLUCTUATION DO YOU REQUIRE TO BE EFFECTED BY THE DRAINAGE SYSTEM?

In your answer:

- specify the maximum allowable water table position for major types of crops, differentiating between irrigation season (or growth stages in an irrigation season) and off-season
- where transient water tables are formulated, specify also required drop rate
- specify other major factors of practical importance in establishing the required water table, indicating how each factor influences the ultimate depth and to what extent.

B.2 DRAIN DEPTH

B.2.1 WHAT DRAIN DEPTH DO YOU CONSIDER PRACTICAL OR DESIRABLE?

In your answer:

- specify the desired drain depth under conditions of no limitations of soil profile and drain outlet levels
- indicate how drain depth is influenced by soil conditions, particularly by soil stratification
- indicate how drain depth is related to the water table position at the end of a drain-out period between two water applications, and to cropping intensity (including fallow periods)
- show how the cost of pipe drain installations is related to drain depth.

Please note:

Drain depth refers to the (average) depth of a drain pipe line below ground surface.

B.3 DESIGN DRAINAGE RATE

B.3.1 HOW DO YOU DETERMINE THE DESIGN DRAINAGE RATE (OR DRAINAGE COEFFICIENT) IN AN IRRIGATED AREA?

In your answer:

- give breakdown of factors of influence, including cropping intensity

- give values of design rates, or ranges of rates, for a few typical situations (regarding, e.g. soil hydraulic conductivity, crop water requirements, soil moisture retention, irrigation water quality, irrigation efficiencies) in your area, inclduing a precise description of the prevailing conditions and a breakdown of the design rate components.

Please note:

The design drainage rate refers to field drains (also termed relief drains or farm drains) under the assumption of steady-state conditions.

B.3.2 HOW DO DESIGN RATES FOR COLLECTOR AND MAIN DRAINS DIFFER FROM THOSE FOR THE ABOVE FIELD DRAINS?

B.4 HYDRAULIC HEAD

B.4.1 FROM YOUR CONSIDERATIONS UNDER QUESTIONS B.1.1 AND B.2.1, HOW DO YOU OBTAIN VALUES OF HYDRAULIC HEAD FOR USE IN STEADY-STATE DRAIN SPACING CALCULATIONS?

B.5 DEEP PERCOLATION

B.5.1 WHAT ARE PRACTICAL VALUES FOR DEEP PERCOLATION LOSSES TO BE USED IN TRANSIENT DRAIN SPACING CALCULATIONS?

In your answer:

- specify how these losses are related to water application system, soil type, crop water requirements, infiltration rate, hydraulic conductivity, farmers' water management skills, and related conditions.

B.6 DRAIN SPACING EQUATIONS

B.6.1 WHICH TYPE OF DRAIN SPACING EQUATIONS DO YOU USE, AND UNDER WHAT CONDITIONS?

In your answer:

- justify your selection or preference
- indicate what conditions, if any, will not permit the use of transient equations
- indicate what adjustments, if any, are necessary to use steady-state equations.

Please note:

- of interest is the type of equation (steady-state or

transient type rather than a specific formula

- conditions to consider include:

  soil isotropy and anistropy
  homogeneous and layered soil
  depth of drains, and consequent depth of area
  in which water tables fluctuate

B.7 DRAIN ENVELOPES

B.7.1 WHICH SOIL CONDITIONS REQUIRE ENVELOPE MATERIALS AND WHICH DO NOT?

Please note:

"Envelope" refers to materials other than earth (except perhaps topsoil) placed on or around drainpipes, irrespective of whether used as a filter or as a permeable surround.

B.7.2 WHAT CRITERIA DO YOU SUGGEST FOR THE DESIGN OF GRANULAR ENVELOPES?

In your answer:

- consider, in particular, the grading of the materials and the required thickness of the envelope.

B.7.3 UNDER WHAT CONDITIONS SHOULD A GRAVEL ENVELOPE BE APPLIED A) AROUND THE DRAINPIPE, B) ONLY ON TOP OF AND ALONGSIDE THE PIPE, C) ONLY UNDER THE PIPE?

B.8 MARGIN OF SAFETY

B.8.1 WHERE COULD OR SHOULD A MARGIN OF SAFETY BE INCLUDED IN DESIGNS AND TO WHAT EXTENT?

C. ENGINEERING

C.1 LAYOUT OF SYSTEMS

C.1.1 WHAT LENGTHS OF DRAINPIPE LINES ARE PRACTICAL AND UNDER WHAT CONDITIONS?

In your answer:

- include how lengths are related to requirements of maintenance, drainline slope and construction, as well as to cost and possibly other factors.

C.1.2 UNDER WHAT CONDITIONS ARE PIPE COLLECTORS PREFERABLE OVER OPEN DITCH COLLECTORS OR VICE VERSA?

Please note:

"collector" refers to the drain which collects water from the field drains. These latter are also sometimes referred to as relief drains or farm drains.

C.2 TRENCH BACKFILL PIPING

C.2.1 WHAT MEASURES DO YOU SUGGEST TO PREVENT PIPING OR LOOSE BACKFILL IN FRESH DRAIN TRENCHES DUE TO IRRIGATION?

In your answer:

- indicate the conditions under which you experienced piping problems, and the degree of severity.

C.3 TRENCHLESS DRAIN INSTALLATION

C.3.1 UNDER WHAT CONDITIONS DO YOU CONSIDER TRENCHLESS PIPEDRAIN INSTALLATION PRACTICAL IN ARID LAND DRAINAGE?

D. MAINTENANCE

D.1 JET CLEANING

D.1.1 UNDER WHAT CONDITIONS WOULD YOU PREFER A HIGH-PRESSURE JET FOR THE CLEANING OF PIPE DRAIN LINES TO A LOWER-PRESSURE JET?

Please note:

high-pressure refers to 80 - 100 atm. at the pump.

D.1.2 HOW OFTEN DO PIPE DRAINS NEED TO BE CLEANED?

In your answer:

- indicate how this relates to soil, envelope and pipe materials.

D.2 MANHOLES

D.2.1 UNDER WHAT CONDITIONS DO YOU RECOMMEND MANHOLES (OR BURIED BOXES FOR ACCESS TO PIPE DRAINS) AT THE JUNCTIONS OF PIPE DRAINLINES AND PIPE COLLECTORS OR AT OTHER LOCATIONS IN THE SYSTEM?

In your answer:

- specify whether manholes are required at all junctions and, if not, what density would be practical.

D.2.2 WHEN AND WHERE IS IT PRACTICAL TO USE BURIED BOXES INSTEAD OF MANHOLES WHICH EXTEND ABOVE THE GROUND SURFACE?

E. COST FACTORS

E.1 ECONOMIC LIFE OF PIPE DRAINS

E.1.1 WHAT IS THE ECONOMIC LIFE OF PLASTIC PIPE DRAINS AS COMPARED TO CONCRETE OR CLAY PIPES?

E.2 MAINTENANCE COST

E.2.1 WHAT IS THE ANNUAL COST FOR THE MAINTENANCE OF PIPE DRAINS?

E.A.F.C.
S. Agricultura

ICRAF - CIAT - GTZ/DEPARTMENT OF AGRICULTURE
ROCKEFELLER FOUNDATION/AGRICULTURAL SCIENCES
NORTH CAROLINA STATE UNIVERSITY/AGRICULTURE

October 26, 1979

Dear Dr. Yudelman:

On behalf of the International Council for Research on Agroforestry (ICRAF), the Centro Internacional de Agricultura Tropical (CIAT), the German Agency for Technical Cooperation (GTZ), North Carolina State University and The Rockefeller Foundation, we have the honor of inviting you or a designated representative to participate in a small International Conference on Amazon Agricultural and Land Use Development which will be held April 16-18, 1980 at CIAT in Cali, Colombia.

The Amazon Basin represents a substantial portion of the land resources of several South American countries. Agricultural and other forms of development in the region can and should make an important contribution to the economic growth of these nations. Each country is, of course, interested in and has encouraged improved agricultural and forestry practices in its portion of the Basin. Most have relevant agricultural research programs underway or in the planning stage. In addition, there are several international research and/or assistance agencies that are cooperating with, or providing assistance to, agricultural research in the Basin. Other international organizations are interested in becoming involved but have not yet identified appropriate opportunities.

Previous and current research has led to a much improved understanding of the potentials and constrains to expanded development in the Amazon Basin. It is now generally accepted that development of sustainable agricultural systems will not be an easy task. Considerable additional research will be required in order to develop crops and farming systems that have long-term viability under the difficult conditions encountered throughout most of the Basin.

The purpose of the conference is to facilitate the initiation, expansion and utilization of such research. Specifically the objectives of the conference are 1) to review the state of knowledge on land utilization in the Amazon Basin, 2) to formulate a coherent strategy

for future research on rational Amazon land use development, and 3) to discuss opportunities for cooperation toward implementing that strategy.

About twenty-five knowledgeable and concerned individuals are being invited to the conference. Included are representatives of governmental and non-governmental organizations presently conducting research in the Amazon Basin and representatives of interested technical assistance and funding agencies.

A tentative agenda for the conference is enclosed. The meeting would begin with presentations which review current national Amazon development policies and programs, thereby placing subsequent discussion and recommendations within the appropriate framework. Next would be a review of the existing state of knowledge concerning the agricultural resource base of the Amazon and alternative agricultural and land use development options. Future research needs and strategies and opportunities for cooperation would then be discussed and appropriate recommendations developed.

State of knowledge reports on soils, natural systems, pastures and animal production, permanent crops, annual crops, and integrated farming systems of the Amazon are being prepared and will be sent to participants prior to the conference.

In addition, if you or your colleagues have recommendations concerning the components of a coherent research strategy for Amazonia, please send them as soon as possible to Dr. Pedro Sanchez, Soil Science Department, North Carolina State University, Raleigh, North Carolina 27650, USA. Dr. Sanchez, who was formerly at CIAT, is directly involved in Amazonian agricultural research at Yurimaguas, Peru. He has graciously agreed to synthesize these recommendations into a draft strategy statement which can serve as the starting point for discussion and development of a strategy statement at the conference.

We feel certain that you will be able to make an important contribution to the conference and hope that you will accept our invitation. The conference will last three full working days, April 16, 17 and 18, so we ask participants to plan their arrival and departure schedule accordingly. Limited funds are available to cover expenses incurred by participants who are not able to obtain reimbursement from their own institution or government.

We look forward to your reply and to a highly constructive and productive conference.

Sincerely yours,

K. F. S. King
Director General, ICRAF

John L. Nickel
Director General, CIAT

Klaus J. Lampe
Department of Agriculture, GTZ

John A. Pino
Agricultural Sciences
The Rockefeller Foundation

Pedro Sanchez
Tropical Soils Research Program
North Carolina State University

Dr. Montague Yudelman, Director
Agriculture and Rural Development Department
International Bank for Reconstruction
and Development
1818 H Street NW
Washington, DC 20433

Enclosure

P. S. Please send your reply to CIAT, Apartado Aereo 6713, Cali, Colombia, with a copy to the Agricultural Sciences Division, Rockefeller Foundation, 1133 Avenue of the Americas, New York, N.Y. 10036, U. S. A.

INTERNATIONAL CONFERENCE ON AMAZON AGRICULTURAL AND LAND USE DEVELOPMENT

APRIL 16-18, 1980

CIAT - CALI, COLOMBIA

TENTATIVE AGENDA*

Wednesday, April 16	Review of Current National Amazon Development Policies and Programs
9:00 AM	Brazil Bolivia Colombia
12:30 PM	Lunch
2:00 PM	Ecuador Peru Venezuela
Thursday, April 17	Review of the Agricultural Resource Base and Land Use Development Options
9:00 AM	Soils Natural Systems Forestry
12:30 PM	Lunch
2:00 PM	Pastures and Animal Production Permanent Crops Annual Crops
6:00 PM	Dinner
7:30 PM	Integrated Farming Systems for the Amazon
Friday, April 18	Development of a Strategy for Future Research and Discussion of Opportunities for Cooperation
9:00 AM	Strategy for Future Research on Rational Land Use Development
12:30 PM	Lunch
2:00 PM	Opportunities for Cooperation in Implementing the Strategy for Future Research

* Presentations will be concise and the agenda relatively flexible in order to ensure ample time for discussion.

INTERNATIONAL CONFERENCE ON AMAZON AGRICULTURAL AND LAND USE DEVELOPMENT

APRIL 16-18, 1980

CIAT - CALI, COLOMBIA

LIST OF INVITEES

Representatives of Governmental and Non-governmental organizations conducting research in the Amazon Basin.

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Dr. Enrique Ampuero
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Dr. Paulo de T. Alvim
Scientific Technical Director
Centro de Cacau, CEPLAC
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~~DAS~~

OFICINA PERMANENTE INTERNACIONAL DE LA CARNE
INTERNATIONAL MEAT OFFICE

S. Agriculture

Files

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Mr. Don Stoops
Livestock Councellor
WORLD BANK
1818 H. Street N. W.
WASHINGTON, D. C. 20433

Madrid, October 26, 1. 979

Dear friend,

I am pleased to inform you that OPIC will be holding its Executive Council in the city of Mexico on the 24th, 25th, and 26th of January, 1980. In coordination with this Executive Council, a Regional Symposium will also be held in three sessions, dedicated to the analysis of the present situation and future perspectives of the meat trade in the areas of the Pacific, Central America and Mexico.

These meetings will be organized by the National Confederation of Cattlemen of Mexico (Confederación Nacional de Ganaderos), and by the Secretariat of Agriculture of the nation. The tentative pro - gram is as follows:

Thursday, January 24th.

10:00 A. M. Opening ceremonies. At 11:15 A. M. a work session will be held dedicated to the exposition of the problems and perspectives of cattle raising and the meat industries and commerce in Mexico, under the direction of participant's from Mexico's public and private sectors. This session will last until 1:00 P. M.

Throughout the afternoon, beginning at 4:00 P. M., an analysis will be undertaken of the present situation and future perspectives of cattle raising and the meat trade in the Pacific area, inviting to this effect representatives from Australia, New Zealand, Japan, the United States, and Canada to present papers in this regard.

Friday, January 25th.

Starting a 10:00 A. M. the morning session will focus on the world situation, and for it, we are requesting the participation of the European Economic Community, FAO, UNCTAD, IFAP, UEMI, INAC, the National Meat Board of Argentina (Junta Nacional de Carnes) and of other possible participants with whom we are now in contact.

./...

In the course of this same session, if feasible, a motion will be presented by OPIC, calling for a possible medium-term international agreement to regulate the meat trade, at a time of a rising market, by summoning all the parts concerned to sit together and take up the negotiation of a minimum program of agreement.

The afternoon of the 25th will be reserved for the Executive Council of OPIC, and the draft of the order of the day to be followed will be forwarded to you in the near future.

Saturday, January 26th.

On the morning of the 26th, the solemn adjournment acts will take place, with the presentation of conclusions, a final communicate, and the summoning of the IV World Congress.

Please, we would need to receive confirmation of the persons attending before the 20th of December in order to arrange for hotel reservations as the Secretariat of Agriculture of Mexico will take care of this, obtaining for us special rates. All those planning to present papers should forward them in English or Spanish to the General Secretariat of OPIC by December 15th, to see to their translation and publication so that they may be edited before the Symposium begins. The sessions will be held with simultaneous translation in Spanish, English, Italian, and Japanese. If any other language is needed there would be no problem in including it.

Looking forward to hearing from you promptly,

Yours sincerely,

José Luis PARAMO NEYRA
Secretary General

S-Agric R.D.

Mr. Ted J. Davis

October 26, 1979

Peter B. Hammond

Seminar Presentation by Professor Gunnar Sørbø of the University of Bergen on "Irrigation Agriculture and Pastoralism in the Sudan"

We have now received a five page outline of the seminar paper Professor Sørbø proposes to prepare for presentation at the Bank in late January, 1980.

1. His paper will focus on the need for development planners to see herdsmen and farmers as component parts of a single integrated system of production, one that must include as well attention to the "off scheme" economic activities of both groups, if the full dimensions of the prevailing economic order are to be properly understood and planned for. He will refer to the Bank's Savannah Development Project in Western Sudan and, as appropriate, to other Bank projects. He promises to conclude with a concise statement of the operational relevance of his analysis to the implementation of Bank projects elsewhere. Professor Sørbø is a highly regarded anthropologist, the Chairman of his Department and I think his seminar presentation promises to provide Bank staff with a stimulating experience that can be productively related to their own work.

2. With your approval, and in accordance with Michael Cernea's plans, I will ask Professor Sørbø to spend Monday and Tuesday, January 21 and 22 at the Bank in discussion with Bank staff and to present his paper Thursday, January 24, thus allowing him one day to incorporate the results of these discussions in his seminar presentation. I will also contact personnel to request that a contract for his services be prepared. As soon as I have your reply, I will write to Professor Sørbø confirming these arrangements and his agreement to send us a copy of his paper by mid-December.

PHammond/dad

cc: Mr. Christoffersen, Ms. Kolan

FORM NO. 75
(9–78)

THE WORLD BANK

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Wallich	

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FROM: M Yulo	ROOM NO.: D823	EXTENSION: 75323

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

Mr. E. Stern

OFFICE MEMORANDUM

TO: Mr. M. Yudelman, Director, AGR

DATE: October 25, 1979

FROM: H. Walters, AGR

SUBJECT: CANADA: Consultation on Food Strategies
Back-to-Office Report

1. On October 15, 1979, I was in Ottawa to discuss food strategies with representatives of various Canadian government agencies. These discussions were at the request of Mr. Claude Brouillard, Director General, Intergovernmental and International Services Branch, Agriculture Canada. Those involved in the discussions and their agency affiliations are indicated in an attachment. During these discussions I also met briefly with Mr. Gaetan Lussier, Deputy Minister of Agriculture.

Background

2. Mr. Brouillard is responsible for implementing the pledge of the Canadian government--announced at the World Food Council meeting in September--to make available CAN$2 million in technical assistance for the purpose of supporting the formulation of food strategies in developing countries. These funds are to be committed by December 1980 and to be disbursed by March 31, 1981.

3. In determining how Canada might use these funds, Mr. Brouillard met with Mr. Maurice Williams, Executive Director of the World Food Council (WFC), in New York on September 24. He then made an initial visit to the Bank on September 25, at which time he met with you and representatives of the regions. It was decided that it would be useful for me to go to Canada for more detailed talks after my return from meetings with the WFC in Rome, where progress on food strategies was one item discussed (another report).

Nature and Substance of Discussions in Canada

4. The discussions on October 15 were informal. They followed earlier discussions between the agencies indicated in the attachment and preceded broader discussions that Mr. Brouillard intends to have with various Canadian universities and private sector groups.

5. The substance of the discussions included: (a) the purpose, nature and scope of food strategies; (b) the present status of work by the WFC and the Bank in the formulation of food strategies; (c) practical aspects of the experience gained so far by the Bank, especially in its assistance to the Philippines; (d) possible areas of cooperation between the Bank, Canada, and the WFC; (e) developing countries which might wish to initiate such strategies and which would be of particular concern to Canada; and (f) specific issues associated with the form Canadian assistance might take and how this might be coordinated with the Bank.

6. On the purpose, nature and scope of food strategies I drew heavily on materials previously circulated in the Bank (memoranda to Mr. Gould, AEA, dated May 2 and August 15, 1979). I emphasized the need for country initiation and participation; the importance of utilizing existing materials in the first phase, rather than undertaking new studies; the necessity of linking food production and consumption/nutrition elements; the need to include broader policy elements affecting the production and distribution of food; the need to generate early project and program implications as well as indicating the longer term needs for analysis; the need for clarity and brevity regarding the country's food problems; and the national and external resource, policy and other actions needed to solve those problems.

7. On the present status of work so far by the WFC, the Bank and others, I mentioned the following:

(a) Mr. Williams cabled personally to each of the "food priority countries" in early October requesting an indication of their interest;

(b) The Bank had initiated discussions with the Philippines government in July and that work on a Philippine Food and Nutrition Plan (food strategy) was now well advanced through task forces in the Philippines and other work in progress within the Bank, including the Poverty Mission;

(c) The Bank was also engaged in a variety of work with Bangladesh relevant to a food strategy;

(d) Discussions had taken place in late September in Nigeria between the WFC and the Nigerian government and that the Bank's regional representative was involved in those discussions;

(e) That the WFC and IADB had been cooperating with Honduras on a food strategy; and

(f) That Mr. Williams had received indications of other donor country interest in allocating funds or assistance to support the formulation of food strategies.

8. On the practical aspects of experience so far, drawing primarily on experience in the Philippines, I mentioned that: (a) The Bank was already heavily involved in a wide variety of activities, studies, sector work and projects; (b) the Philippines government and other Philippine institutions had also carried out a great deal of analysis; and (c) the Philippines also had a fairly well developed five- and ten-year development plan with regional elements. These efforts, as well as those of other multilateral agencies and aid-donor institutions, provided the basis for much that was needed to formulate an initial food strategy in the Philippines.

9. For these reasons, the emphasis was not to initiate another study or draw up another plan, but to determine as quickly and clearly as possible what was and was not known about the food problems in the Philippines, what was now being done to solve those problems, and what

else might be done and by whom. In this way, the Philippine strategy could be fitted into the present plan structure and the present operational and sectoral state of knowledge possessed by the Bank and the Philippine government. I emphasized that to me this was a critical element of any food strategy.

10. I also indicated that in developing an initial food strategy in the Philippines, the government has established task forces--on Agriculture and Fisheries and on Nutrition and Food Consumption--while the Bank was relying heavily on its Poverty Mission and other on-going analysis as a basis for developing other elements of the plan. And that efforts were being made to utilize an already programmed support services mission to provide early project follow-up to the strategy if that was warranted.

11. I indicated that the most important lessons learned so far from the Philippines experience were that:

(a) the first (phase of a) food strategy should be based on material already available, but that this is difficult because there is a tendency for the country and others to want to start afresh;

(b) that the best way to ensure this was to tie the food strategy as closely as possible to institutions in the country and outside which were already heavily involved in food related issues--agriculture and natural resources, nutrition, government policy and planning;

(c) that government support (within the country) was heavily influenced by how seriously the assisting institutions seemed to take the undertaking;

(d) that the interest of the government, as well as assisting institutions and governments, was also heavily influenced by the practical results they could see emerging from it (projects and programs for the country and for operational units within institutions, and the solution of major policy questions for assisting institutions and governments);

(e) that the capacity to act quickly at the government, and sometimes the assisting institution, level was at times constrained by short-term, modest financial constraints. If the strategy is to be developed quickly and in addition to already programmed work, staff would normally be committed to other activities. In the case of most developing countries, governmental institutional staff is not always as qualified as other local talent for which some additional funds would be needed to engage their services for brief periods; and

(f) that a close working relationship would be needed between the country, the assistance provided by a country such as Canada, an institution such as the Bank, and the World Food Council, if a coherent and operationally useful strategy was to be developed.

Areas of Cooperation Between the Bank, Canada and the WFC

12. Since the food strategy effort was initiated by the WFC, there was general agreement that the WFC needed to be actively involved in the early initiation of food strategies; ensuring some uniformity of results; and ultimate follow-up. But since the WFC sees its function as essentially that of a "clearing house" and it has no real technical expertise, the practical work and immediate follow-up would depend on the resources contributed by the country and assisting institutions and governments.

13. The Canadians indicated that they were especially attracted by the broad focus of the strategies--interlinking agriculture, rural development, nutrition, and larger but relevant policy issues. They were interested in cooperating with the Bank where possible. They wanted to be sure that once a developing country had expressed a serious interest, there would be an early, effective and coordinated response by the WFC, the Bank (if it was the assisting institution) and by Canada. Mr. Brouillard suggested an early, brief initiatory mission composed of representatives of these institutions and/or governments. He and Mr. Lussier will be discussing this point with Mr. Williams in Rome on November 8-9 and would like the Bank represented there if possible.*

14. Recognizing the need for some financial flexibility, Mr. Brouillard indicated that Canada would be prepared to consider making some fraction of their assistance, maybe 10-15%, available to the country for it to employ additional local talent if needed and as an indication of the seriousness of its concern. He indicated that it would be useful if the Bank could also make similar amounts of money available for this purpose if the need arose. However, most of Canada's assistance will be available in the form of Canadian technical personnel.

15. We discussed the Philippines, Bangladesh and Nigeria, where the Bank was already (or it appeared it might be) taking the lead. We discussed the possibility of the Bank's being able to draw on Canadian talent in those undertakings. It would appear that the Philippines undertaking is too far along for this to be possible but it might be possible to use Canadian expertise in some aspects of early follow-up on the Philippines food strategy. With respect to Bangladesh and Nigeria, there would be good possibilities to draw on Canadian assistance, if food strategies were to be formulated during the coming year. However, Mr. Brouillard indicated that it might be difficult to make this kind of assistance available to Nigeria and the Philippines because of their development (income) level.

16. The Canadians also indicated a desire to take the lead in possibly another two or three countries during the coming year, since their commitment amounts to about 20 man-years. In this case, they were interested in the Bank's involvement in such undertakings, primarily in the form of advice, guidance, and possibly limited staff participation. They would expect to be providing most of the technical talent, but would want the integrated, operational aspects outlined in paras 8-11. In this regard, we discussed

*This is a recent development, and Mr. Brouillard has suggested that if I or someone else could not be present, the matter might be discussed by telephone from Rome.

some likely countries, but responses to Mr. Williams' cables seems the next step before any kind of country selection would take place. Mr. Brouillard has requested an early indication of interested countries from the WFC.

Issues

17. The immediate issues raised for the Bank are:

(a) The possibility of the Bank's utilizing Canadian technical assistance in food strategy efforts it may undertake in support of efforts by the Philippines, Bangladesh, and Nigeria;

(b) The possibility of the Bank's supporting Canadian efforts in two or three other countries;

(c) Effective means of coordinating these efforts and this cooperation within the Bank and between the Bank and Canada and the WFC; and

(d) Whether the Bank can find a way to make available some modest amount of funds to enable countries to employ local talent to support their contribution to the formulation of food strategies.

18. Another issue is the role of the Bank in future food strategy efforts should these expand rapidly as a result of additional support.

Recommendations

19. With respect to Bank-Canadian cooperation in the Philippines, that strategy seems to be too far along for use of Canadian assistance. If the mission now scheduled for November 15-December 15, which is to put the strategy together, finds that an adequate strategy cannot be completed in the time allowed, and if there appears to be a need for additional specific expertise, it might be possible to use Canadian assistance during January-February 1980. Or, if the plan can be essentially drafted by December 15, it might be possible to use Canadian assistance in early follow-up action during CY 1980. I discussed these possibilities with Mr. Brouillard and he said that Canada was prepared to be flexible and that such assistance was possible. A decision about this should await the results of the November 15-December 15 mission.

20. The dimensions of future food strategy work planned for Bangladesh during 1980 are not clear. A Bank mission was sent in early 1979 to assist in preparation of a five-year crop production plan. In September another Bank mission was in Bangladesh dealing with a number of economic issues, particularly connected with food aid flows and the government's capacity to determine the need for food aid, effectively handle such aid, and balance its use of food aid with food production efforts.

21. Meanwhile, Mr. Ahmed, the Deputy Executive Director of the WFC, who is from Bangladesh, visited Bangladesh in October to discuss further work on a food strategy in that country. He has just returned

to Rome with a letter of understanding between Bangladesh and the WFC about future cooperation on a food strategy. It is my understanding, however, that these discussions and the work of the Bank in Bangladesh relating to food, have not, so far, been coordinated.

22. My understanding is that the South Asia Region will be discussing its food strategy conclusions as an important part of the Bangladesh consortium meeting in January and that its concerns will be practical, operational issues involved in matching the Region's production and other concerns with the present Bangladesh objective to double food production in the next five years.

23. Given the possibility of two different food strategy efforts being considered for Bangladesh at the same time--by the Bank/Region and maybe by WFC--and the Candian willingness to assist, I recommend that these issues be discussed with Mr. Williams (WFC) when he is in Washington during the week of October 29-November 2. If the South Asia Region is contemplating further food strategy work in Bangladesh in CY 1980, or if the results of discussions with Mr. Williams indicate further work, I recommend that the possibilities for utilizing Canadian technical assistance be explored with Canada in the near future.

24. In discussions with the WFC and with Mr. Sonmez (WA1), it appears that Bank assistance to Nigeria in formulating a food strategy is still at an early stage. Nigeria has formally requested assistance for such an undertaking from the WFC and has indicated to the WFC that it would like the Bank to take the lead in that effort, but a formal request has not yet been received by the Bank. Mr. Sonmez expects to be in Nigeria in mid-November when this issue, among others, could be discussed.

25. Mr. Brouillard has indicated that the general reluctance of the Canadians to assign assistance to Nigeria and the Philippines, because of their middle-income status and other criteria, might be modified through further discussions. I would recommend that this be done if there proves to be a strong desire by Nigeria to formulate a food strategy and if additional expertise is needed. (This applies also to the Philippines, reference para 19.)

26. Regarding Bank cooperation with Canada on additional food strategy efforts that Canada might undertake to assist largely on its own, important considerations for the Bank are: (a) the need to ensure that any food strategy produced benefits from the Bank's existing knowledge of the food problems of that country; and (b) that such a strategy be compatible with the Bank's perceptions of how that country's food problems might be solved. I would recommend that the Bank indicate its willingness to cooperate with Canada in such undertakings, but that the degree of cooperation would have to be established on a case-by-case basis.

27. Coordination of cooperation between the Bank, Canada and the WFC on either type of undertaking--whether assistance and direction are led by the Bank or by Canada--should have two dimensions. Assistance to a country in which the Bank is taking the lead would be largely managed by the Region, as is now the case for the Philippines and Bangladesh and would, presumably, be the case for Nigeria. In such cases,

the developing country and the Regions would have to determine what support was needed, with AGR providing whatever advice, guidance and support seems appropriate. But some kind of overall communication link is needed between the Bank and Canada and the WFC, especially when more than one region is involved. This function would seem to be best performed by AGR/CPS. I would recommend that an understanding be reached within the Bank regarding this.

28. The need for some modest financial flexibility (beyond staff time and costs by the developing country, the Bank or an assisting country such as Canada) is in my estimation critical. In the case of the Philippines, the performance of their task forces would have been greatly strengthened and accelerated had it been possible to provide them, at the outset, with a modest amount of funds to augment their two task forces with local competence. I believe this will be the case in many countries if the strategies are to be prepared quickly and competently. The amounts involved would be relatively modest, maybe $15 to $30 thousand per country. But the impact on the quality of the country's performance and as an indication of the seriousness of the Bank's interest, would be more than compensated for. I would recommend that consideration be given to determine how the Bank might develop such flexibility.

The Role of the Bank in an Expanded Food Strategy Effort

29. Mr. Williams of the WFC has indicated that in addition to the Canadian commitment, other countries have indicated a willingness to consider contributing some funds or technical assistance to support food strategy preparation. He has mentioned specifically the possibility of $5 million in assistance by Italy. Should this assistance materialize, along with that of Canada and what is already being done by the Bank, it is not difficult to imagine a far more complex (countries and institutions involved) set of strategy undertakings getting underway during the next year.

30. This raises a number of issues:

(a) how many well-conceived and well-executed food strategies can be prepared during the next 12 to 24 months;

(b) the capacity of donor countries and multilateral institutions to respond to these strategies once formulated, given the limited prospects for expanded development assistance at the present time;

(c) how effectively such an expanded effort could be coordinated; and

(d) how actively the Bank wants to be involved in an expanded effort.

31. Originally, the idea of food strategies was to undertake a careful effort in a limited number of countries (4 to 6). After these strategies had been completed, an appraisal would be made of the lessons learned and the usefulness of the strategies to the countries involved, to the assisting institutions, and to the WFC as a means of helping to solve larger problems. The reasoning behind this was that the capacity to for-

mulate very many sound country food strategies at any one time was limited, and that some time would be required to move from the formulation of a strategy to the development of the means to support it (internal resources, external assistance, and policy commitments by the country and assisting institutions). It may be difficult to proceed in this way, however, should very much more than the Canadian support materialize.

32. If the effort is expanded to a larger number of developing countries and institutions and donor countries, it would seem inevitable that a great deal of autonomy (assisting institution-country) would develop in individual country undertakings. In these circumstances it would be difficult for the WFC, with its few people, to exercise a very close overview function, and there would be a strong tendency for the donor country or assistance agency to concentrate on its particular concerns vis-a-vis the country. This could diminish the general attraction of such strategies to other donor countries and institutions.

33. At present, the Bank's involvement in food strategies is heavily influenced by the lending program and other concerns of the region in relationship to the country involved. This is a major force tending to reinforce the operational usefulness of such strategies and insure that they emerge within the context of existing sector and project knowledge within the Bank. The Bank has a strong interest in retaining this regional-project operational relevance in any strategy that is proposed. But this will be difficult to retain in strategies in which the Bank is not the leading institution directing the assistance, and even more difficult in cases where the Bank is not involved.

34. It is also my feeling that at this particular time, when many donor countries have indicated strong resistance to expanding their assistance to developing countries, the emergence of very many strategies in the near future would result in an unsatisfactory response by donor countries. This could reinforce the concerns of some developing countries that such strategies were simply a way of delaying action or diverting limited external assistance.

35. For all of these reasons, I recommend that the Bank activtely participate in the development of food strategies, either taking the lead where feasible or joining with other donor countries or institutions where relevant. But I would also recommend that the Bank: (a) try to influence others to concentrate on a limited number of countries at first and use the resources available intensively; (b) encourage both developing countries, and those donor countries willing to assist, to use information available as a basis for the first food strategy; (c) emphasize the importance of integrating any strategy solidly into on-going work programs such as those of the Bank; and (d) encourage donor countries and other assisting institutions to recognize that the essential problem is not the small amount of resources needed to formulate the strategies, but the capacity of the developing countries themselves and the development assistance community to produce meaningful strategies and to respond to them once formulated.

36. Given the rapidly evolving series of issues surrounding food strategies and the possibility that even more complex issues might emerge shortly, I would suggest an early meeting within the Bank to discuss many of the issues indicated above and to establish a clearer basis for future Bank actions.

Distribution:

AGR
Yudelman
Pickering
Christoffersen
Donaldson
Goering
Turnham

PHN
Berg

WA1
Sonmez

South Asia
Hopper
Armstrong
Brown, Gil
Holsen, John
Dunn, David

East Asia
Blaxall
Gould
Hill

cc: EStern, VPO

HWalters:et

Canadian Participants in Food Strategy Discussions

October 15, 1979

Name	Agency
Claude Brouillard	Agriculture Canada
Brian Ross	CIDA (FACE)
Gerard Ouellette	CIDA (Natural Resources)
Craig Wilson	External Affairs
Susan McCoy	Agriculture Canada
Mr. Rowe	IDRC
Ralph Latimore	Agriculture Canada (Policy)
August Johnson	Agriculture Canada (FP-M)
J. P. Ferland	Agriculture Canada (O.P.S.)

* * * * *

Gaetan Lussier	Deputy Minister, Agriculture Canada

S-Agriculture

Mr. Moeen A. Qureshi

October 25, 1979

J. Burke Knapp

APIM

May I consult with you, or with whomever you may designate, as to how I might reply to the attached letter.

The writer called on me many months ago, and I thought that his proposition was of sufficient interest to refer him to a couple of people in the Bank and the IFC but unfortunately I do not have a record of who else might have talked to him at that time.

In any case, he has now formulated the attached paper, which seems to me to represent a pretty sensible approach to the question of organizing management services for agricultural and agri-business enterprises.

I have already sent the attached paper to Monty Yudelman whose response was that they would be glad to discuss these ideas with the writer but that of course when APIM gets to selling their services they must direct themselves to the borrowers in the field rather than to the Bank. I think the APIM people fully understand that despite a reference in their paper to "developing a working relationship with the World Bank Organization and associated financing agencies".

Attach.

JBKnapp:isk

S - Agric + RD

Mr. F. Graham Pyatt, DRC

October 24, 1979

Pasquale L. Scandizzo, AGREP

Review of the SAM Workshop

1. I found this workshop well-organized, useful and enjoyable. I have only a few comments on the selection and ordering of the material presented. These comments are not only the product of my immediate reaction to the workshop, but are also the results of discussions held with other people in this Department who participated in all or part of the workshop.

2. First, despite the fact that a full day was provided for a non-mandatory numerical exercise, the workshop was very dense and gave very little time to read, reflect on the material presented and attend to routine office duties. As a result, the partial or total drop-out rate was higher than it would have been otherwise, no one (as far as I know) went through the numerical exercise, and relatively few people appeared to have read and digested at least part of the readings suggested. For the future, I think that the density of the workshop could be considerably decreased by shortening the sections in the morning and afternoons of the first day, since they were mainly descriptional and tended to indulge in trivialities.

3. Second, I would find it desirable if practical applications to Bank work were stressed and numerical examples provided. An example of a synthetic exercise that I have found very useful is Ben King's back-of-the-envelope SAM for Yemen. Applications of this type would be extremely useful also for project economists trying to put sector work in context.

4. Third, the lecture on models and multipliers was interesting, but too short and most of the people appeared lost. I found your approach in presenting the material potentially of great value, but a full day is probably necessary to convey the message to a large and diverse audience. Also more time for discussion should be allowed.

cc: Messrs. G. Donaldson, T.J. Goering, B. Abbai and Ms. Swamy

PLScandizzo:hc

OFFICE MEMORANDUM

TO: Mr. Montague Yudelman, Director, AGR DATE: October 23, 1979

FROM: T. James Goering, Acting Chief, AGREP

SUBJECT: Current Status of Bank Follow-Up to the Tokyo Communique

1. You asked for an update on work within the Bank on: (i) the preparation of country food strategies; (ii) the position paper on food security/storage; and (iii) papers on national and international agricultural research systems. My understanding of the current status of this work is as follows.

PREPARATION OF COUNTRY FOOD STRATEGIES

2. You will recall that the Bank's initial focus in this regard was to be on the Philippines, Bangladesh and Nigeria. The work on the Philippines food strategy is probably the most advanced at this point. In the Philippines, two Task Forces--one in the Ministry of Agriculture (Agriculture and Fisheries), the other under the auspices of the National Nutrition Council (Nutrition)--have been operating since late June to prepare background documents for a national food strategy paper. A recent Bank mission on poverty has provided additional information, as has an initial food policy mission earlier this year. A follow-up food policy mission by the Bank is now scheduled for mid-November. The findings of these Bank missions, together with the work of the Philippines Task Forces, are to be integrated, through a joint Bank-GoP effort, into a national food strategy document. Present plans call for the completion of this work by the end of calendar year 1979. Staff of both CPS/AGR and EAP have been heavily involved in the Philippines exercise.

3. There has been a considerable history of work on national food plans or strategies in Bangladesh, some of which dates back to that country's food plan prepared for the CGFPI. More recently (c. April 1979), a Bank mission assisted the GoB in the initial work of preparing a 5-year crop production plan. Work on that document is nearing completion. Subsequently, a Bank Economic Mission and a Food Policy Mission have examined several aspects of what might eventually be contained in a national food strategy. The BTO Report of the Food Policy Mission recommends, among other things, a strengthened procurement system for food grains, larger national stocks, the creation of additional storage capacity and procurement points, and eventual curtailment of the ration system to cater only to low-income consumers. The report of the Food Policy Mission is expected to serve as a background document for the meeting of the Bangladesh Aid Group in January 1980.

4. I also understand that in recent days Mr. S. Ahmad, Deputy Executive Director of the World Food Council (WFC), has visited Bangladesh to discuss with government officials the possible preparation of a national

food strategy. I do not know the outcome of those discussions, nor am I clear about the relationship, if any, of the Bank's work on food policy to any possible WFC-related food strategy exercise.

5. Food strategy work in Nigeria is perhaps the least developed among these three countries, although there exists a fairly recent comprehensive survey of Nigeria's agricultural sector by the Bank. The Nigerian Government has written to the WFC for assistance in the preparation of a national food strategy and, in a recent meeting in Lagos involving Bank staff, government and WFC officials, expressed keen interest in receiving such assistance from the Bank. However, my understanding is that a formal request from the government to the Bank has not yet been made. Mr. Walters (AGR) has been discussing with West African regional staff possible approaches to the preparation of a national food strategy for Nigeria. This matter may be discussed further with the government when Mr. Sonmez, Senior Economist (WA1), visits Nigeria in November.

6. Donor interest in the preparation of national food strategies is growing. You will recall that the Canadian government has earmarked $2 M to assist in this effort over the next 12-18 months. These funds must be committed in the April 1980-March 1981 period. The Canadians would like to cooperate with the Bank in this effort in 2-3 countries, while taking a leading donor role in food strategy work in another 2-3 countries. While most of these $2 M would be used to fund technical assistance by Canadian personnel, the government also seems willing to make available on a less restrictive basis some 10-15% of this amount. I also understand that the Italian government has indicated to Mr. Williams (WFC) its willingness to provide up to $5 M for the preparation of national food strategies.

POSITION PAPER ON FOOD SECURITY/STORAGE

7. This paper is to provide a broad overview of the major issues involved in efforts to enhance food security among low-income, food-deficit countries. It would also attempt to identify the most effective interventions by donor agencies such as the Bank. A rough first draft of the paper has been prepared in this division, although considerable additional work is required before a draft for internal discussion is available. The principal author is on mission during October 15-26 and will be collecting additional background information in that period. A discussion draft of the paper may be available by about November 10.

AGRICULTURAL RESEARCH

8. The Bank policy paper on national agricultural research was reviewed at staff level on September 20. The paper was subsequently revised and should be ready for distribution to senior management within a few days. Regarding the international system, you will recall that the CGIAR Integrative Report, to be discussed at the forthcoming Centers' Week, contains proposals for: (i) an approximate doubling of CGIAR expenditures (in nominal terms) by 1984 and (ii) a comprehensive review of the scope, organization and management of the international system.

cc: Messrs. G. Donaldson (AGR) o/r; C. Lewis (AGR) o/r; H. Walters (AGR) ✓

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

N. A. Wilkie

OFFICE MEMORANDUM

TO: S. Boskey (IRD), Aklilu Habte (EDC) & B. King (DED)

DATE: October 23, 1979

FROM: Timothy King (Chief, DEDPH)

SUBJECT: Review of Communications Components in World Bank Projects During FY79

1. This Division, with support from UNESCO, has just completed a review of the extent to which FY79 Bank group projects included components for 'development communication', i.e., for dissemination of information intended to be practically useful to the recipient. I attach a memorandum summarizing this review.

2. In brief, the Bank group lent about $183 million for development communication in FY79. Of this about 69% was for face-to-face agricultural extension; about 24% was for mass media. Lending for development communication was a little less than 2% of Bank group lending, and it was concentrated in three sectors -- agriculture and rural development, education, and population, health, and nutrition.

cc (with attachment):

VPD: H. Chenery, E.B. Waide
CPSVP: W. Baum, H. van der Tak
Regional Project Directors: H.A. Adler (EAP), W.P. Thalwitz (WAP), S.S. Kirmani (AEP), R. Picciotto (ASP), A.D. Knox (EMP), S.M.L. van der Meer (LCP)
PAS: V. Rajagopalan, J.A. Lee, F. Lethem, C. Weiss
AGR: M. Yudelman, L.E. Christofferson, T.J. Davis, G. Deboeck, J.A. Greene, E.M. Schebeck, B.A. Thoolen, D.J. Turnham, N.A. Wilkie,
EDC: M. Hultin, E.H. Chittleburgh, S. Futagami, B. Woods
Regional Education Division Chiefs: A.P. Cole, R.K. Johanson, J.L. Scearce, I. Serageldin, J.J. Stewart, K.M. Thint
PHN: J. Evans, A. Berg, K. Kanagaratnam, D. Radel, A. Shaw, S. Yun
TWT: C. Carnemark, D. Julius, J.M. Kalbermattan, R.J. Saunders
EMP: E.F. Quicke
PPR: M. ul Haq
WDR: P. Isenman
DED: A. Stoutjesdijk, M. Leiserson, M. Selowsky, R. Webb, DEDPH Staff
DRC: G. Feder
IRD: L.P. Chatenay, N. Raphaeli, V.J. Riley
EDI: A. Stevenson, I.A. Sirken
IPA: J. Merriam, D. Bahl

DJamison:dp

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Messrs Timothy King (Chief, DEDPH) & Alan Hancock (UNESCO) DATE: October 23, 1979

FROM: Dean T. Jamison (Economist, DEDPH) & Deborah Hallam (Consultant, UNESCO)

SUBJECT: Communications Components of World Bank Projects, FY79

1. The possibility of drawing systematic lessons from the substantial number of Bank Group projects with communication components has stimulated occasional discussion of the desirability of ascertaining the extent and nature of Bank communication lending. In addition, the forthcoming Preparatory Meeting of Experts for the Intergovernmental Planning Conference to Develop Institutional Arrangements for Systematic Collaborative Consultation on Communication Development Activities, Needs and Plans, which is to be held in Washington on November 6-9, precipitated a request from UNESCO (which is serving as conference secretariat) that the Bank provide an estimate of its communications lending. To undertake this, it was agreed that DEDPH would provide office space and supervision if UNESCO would provide a consultant, and UNESCO engaged Ms. Hallam to review appraisal reports for the communication components of projects; her report /1 is available separately. This memorandum summarizes her finidings and tabulates communication lending by sector and regional office. It would go beyond the purpose of this memorandum to discuss the rationale for communication components of development projects or to suggest ways in which the Bank's work in this area could be enhanced; nonetheless, the volume and importance of efforts now underway does suggeest the potential desirability of organizing an informal interdepartmental working group to discuss future directions for Bank activity.

2. A nation's communication 'sector' can be conceived as comprising activities of four sorts: (i) education and training; (ii) telecommunications (mail, messengers, telephony and telegraphy); (iii) entertainment; and (iv) development communication. Our concern in this memorandum is only with the last of these,/2 development communication, which we define as the dissemination of information intended to be economically useful to the recipient. We define 'economically useful' broadly so as to include improving household activities such as family planning, hygiene, and food choice and preparation. The lines between 'development communication' and 'training' as well as between 'training' and 'education' are difficult to draw, and there is no particular need to attempt to do so precisely. Generally speaking, the progression from education to training to development communication is one of increasing specificity of content and of decreasing amount of time

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/1 "World Bank Projects Utilizing Communication, FY79", by Deborah Hallam, October, 1979. This report provides, it should be stressed, approximate estimates for one year only, and any use of the figures in it or in this memorandum should be conditioned on that caveat.

/2 In FY79 the Bank Group lent $579,000,000 for education and $140,000,000 for project-related training. It lent $125,000,000 for telecommunications and, of course, nothing for entertainment. (The telecommunications lending figure varies a good deal from year to year; in 1978, for example, it was $281,000,000.)

spent. For example, secondary schools provide education; agricultural colleges provide some mix of education and training; in-service upgrading of agricutural extension agents is training; and agricultural extension itself is development communication. It is perhaps worth further noting that these various types of communication projects may often have other types as inputs -- e.g. an agricultural extension project may have a component for training extension agents, an education project may have an administrative telecommunications component, or a development communication activity may use entertainment to attract an audience. /1

3. The media for development communication can be characterized as either mass media (radio, booklets, posters, audio-visual equipment, etc.) or face-to-face. Mass media tend to be far less costly per person exposed than is face-to-face communication; on the other hand, mass media are usually less persuasive and less capable of adapting a general message to the particular circumstances of an intended recipient. The appropriate mix of mass and face-to-face media will, of course, depend on the nature of the message, the audience, and the available communication infrastructure. Our analysis of Bank lending for development communication divides expenditures between mass communications and face-to-face; in addition, because broadcast media components of education projects often allow use of the facilities established for a broad range of communication purposes, we have included all Bank Group education sector lending for radio and television in the mass media category.

4. Table 1 summarizes Bank Group lending for development communication in FY79. Virtually all such lending was in three sectors -- agriculture and rural development, education, and population, health and nutrition. /2

/1 The recent Bank-supported monograph on Radio for Education and Development (Beverly Hills and London: Sage Publications, 1978, by D. Jamison and E. McAnany) provides more detail on the nature of, uses for, and experience with development communication.

/2 Population, health, and nutrition activities were combined into one department in October, 1979; the projects referred to in Tables 1 through 3 under that label were undertaken by the then Population Projects Department.

Table 1

BANK GROUP LENDING FOR DEVELOPMENT COMMUNICATION, FY79

Sector	Mass Communication		Face-to-face Communication	
	Amount	Percent of sector lending	Amount	Percent of sector lending
Agriculture and Rural Development	$4,857,000	<1%	$126,629,000	5%
Education	17,436,000	4%	N.A.	N.A.
Population, Health and Nutrition	22,240,000	20%	11,930,000	10%
Total	$44,533,000		$138,559,000	

Tables 2 and 3, at the end of this memorandum, provide regional breakdowns of development communication lending; annexes to Ms. Hallam's paper provide brief descriptions of the development communication components of projects that have them. (These tables include only Bank loans and IDA credits; in addition, the Bank's Technical Assistance Divison, International Relations Department, serves as the executing agent for a substantial number of UNDP-financed projects, some of which, reflecting a general UNDP interest, have development communication components.)

5. In summary, the Bank Group lent about $183,000,000 for development communication in FY79, of which 69% was for face-to-face agricultural extension. About 24% of the total was for mass media. Lending for development communication was a little less than 2% of Bank lending, and the total development communication component cost of $405,000,000 was 1.6% of the total cost of the FY79 projects. Projects in population, health and nutrition made by far the heaviest use of development communication in FY79, with 20% of project lending going to mass communication and 10% to face-to-face communication. In addition to lending for communication, the Bank has had (beginning in 1975) a low level but cumulative research activity dealing with communication and development.

cc: Aklilu Habte (EDC), S. Boskey (IRD), B. King (DED)
H. Dieuzeide (UNESCO), W. Moller (UNESCO)

DJamison:dp

Table 2

MASS COMMUNICATIONS IN WORLD BANK PROJECTS, FY79 [a, b/]

Sector [c/]	Eastern Africa	Western Africa	East Asia & Pacific	South Asia	Europe, Middle East and North Africa	Latin America and the Caribbean	Total With Mass Communication
Agriculture and Rural Development	2 / 235 / 1,720	3 / 577 / 1,450	3 / 3,042 / 4,070	8 / 1,003 / 1,760	1 / 0 / 32	0 / —	17 / 4,857 / 9,028
Education	1 / 622 / 1,776	2 / 314 / 314	1 / 16,400 / 28,100	0 / —	1 / 100 / 164	1 / 150 / 150	5 / 17,436 / 30,508
Population and Nutrition	0 / —	0 / —	2 / 19,840 / 29,000	1 / 0 / 4,500	1 / 2,400 / 5,800	0 / —	4 / 22,240 / 39,300
Total with Mass Communication	3 / 857 / 3,496	4 / 891 / 1,764	6 / 39,282 / 61,170	9 / 1,003 / 6,260	3 / 2,500 / 6,000	1 / 150 / 150	26 / 44,533 / 78,833

[a]Each cell in the table contains the following information: In the upper left hand corner is the number of projects containing a mass communication component; above the line is the number of thousands of dollars of the Bank loan (or IDA credit) estimated to have been designated for mass communication; and below the line is the total estimated project expenditure on mass communication.

[b]The table was constructed from review of the appraisal reports of the FY79 projects for which appraisal reports could be obtained. (There are no appraisal reports for program loans, technical assistance projects, and supplements to existing projects.)

[c]Only in the sectors listed here were projects having a mass communication component identified.

Table 3

FACE-TO-FACE COMMUNICATIONS IN WORLD BANK PROJECTS, FY79 [a, b]

Sector [c]	Eastern Africa	Western Africa	East Asia & Pacific	South Asia	Europe, Middle East and North Africa	Latin America and the Caribbean	Total With Face-to-Face Communication
Agriculture and Rural Development	8 / 14,169 / 39,319	6 / 5,285 / 20,029	5 / 35,948 / 77,006	10 / 53,897 / 95,100	6 / 3,670 / 15,836	8 / 13,660 / 35,815	43 / 126,629 / 283,105
Population and Nutrition	0 / —	0 / —	1 / 2,930 / 2,930	1 / 3,100 / 26,200	1 / 5,900 / 14,200	0 / —	3 / 11,930 / 43,330
Total with Face-to-Face Communication	8 / 14,169 / 39,319	6 / 5,285 / 20,029	6 / 38,878 / 79,936	11 / 56,997 / 121,300	7 / 9,570 / 30,036	8 / 13,660 / 35,815	46 / 138,559 / 326,435

[a]Each cell in the table contains the following information: In the upper left hand corner is the number of projects containing a face-to-face communication component; above the line is the number of thousands of dollars of the Bank loan (or IDA credit) estimated to have been designated for face-to-face communication; and below the line is the total estimated project expenditure on face-to-face communication.

[b]The table was constructed from review of the appraisal reports of the FY79 projects for which appraisal reports could be obtained. (There are no appraisal reports for program loans, technical assistance projects, and supplements to existing loans.)

[c]Only in the sectors listed here were projects having a face-to-face communication component identified.

ME - Agricultural Research
NRIC

Mr. Graham Donaldson, Chief, AGREP (o/r)

October 23, 1979

3 - Agriculture

T. James Goering, AGREP

Back-to-Office Report on Mission to Mexico

1. In accord with terms of reference, dated October 2, I traveled to Mexico during the period October 15-19 to: (i) discuss with CIMMYT staff their policy seminar work; (ii) present a seminar to CIMMYT staff on the Bank's draft policy paper on agricultural research; (iii) discuss with the Bank's Appraisal Mission the Apatzingan Irrigation Project; and (iv) present an address on the world food situation to COPARMEX.

2. CIMMYT's Policy Seminars on Agricultural Production. This program, designed essentially to encourage dialogue among agricultural producers, the research establishment and national policy makers, through the case study method, appears to be developing well. The first policy seminar was held in June 1979 under SEARCA auspices in Manila, with 25 participants, generally in middle-level management positions. Six case studies were used. CIMMYT staff were pleased with the response of participants and with the potential of the approach in sensitizing all involved to the underlying policy issues which are often of key importance in determining the pace at which improved technologies are adopted. The CIMMYT Program Committee (but not all of CIMMYT management) has responded favorably to the concepts underlying the Policy Seminar Program, although uncertainty remains as to whether this should be funded through the CIMMYT budget. The preparation of seminar materials is funded through 1980 by UNDP. It is expected that 12 cases will be prepared by the end of 1979. CIMMYT staff hope to present the seminar series 4-5 times during 1980. Discussions are underway with CIAT, with ISA in the Dominican Republic, INIAP in Ecuador and the Indian Institute of Management at Ahmadabad on the possibility of holding the seminars at these locations. It may be useful to explore the merits of Bank collaboration in a seminar program of this nature, possibly by including such policy seminars in the EDI repertoire.

3. Seminar at CIMMYT on Agricultural Research. My basic objectives were to share some of our thinking on Bank support of national agricultural research systems and to elicit the reaction of CIMMYT staff. The seminar was attended by about 35 people, including most of the senior staff. As a lunch-hour seminar, time for subsequent discussion was short but no basic disagreements with our views emerged. Dr. Borlaug questioned whether a 10-15 year time frame in efforts to strengthen national research programs was adequate, and then posed the question of what external aid agencies could or should be doing to maintain the capability of strong national systems. He mentioned Colombia in particular as a country in which the national system was, to all appearances, deteriorating. A question by one of the economic staff at CIMMYT was whether the Bank was not merely proposing "more of the same" in its approach to support of national

systems--possibly a reflection of concern over what appears to be poor performance of some of the research components in agricultural and RD projects. One of the issues which emerged during discussion--on which CIMMYT's technical and economic staff appear to be divided--is the merit of prefacing actual research activity with agro-economic surveys to establish the nature of "representative" farmers' production problems and thereby hopefully foster a more focused research effort. It will be recalled that the Bank's draft policy paper is supportive of the view that such surveys are required.

4. A few other (unrelated) points of interest emerged during my CIMMYT visit:

(i) During a brief visit with Dr. S. Vasal, in charge of quality improvement in the Maize Program, he expressed the view that good progress is being made in developing a harder endosperm for Opaque 2 (high lysine) maize, without sacrificing yields. He indicated that South Africa plans in the near future to release for commercial use an Opaque 2 maize variety with a hard endosperm. CIMMYT plans to proceed with the work on high lysine maize.

(ii) Dr. B. Skovmand, in charge of the triticale breeding work, stated that good progress was being made in overcoming the most serious problems associated with triticale (sterility, plant height, lodging and shriveled grain). He indicated that shriveled grain was perhaps the most difficult of these problems, although several of CIMMYT's F_5 and F_6 lines now combined high yield potential with good grain characteristics. He pointed out that a growing number of countries, including Mexico, France and Brazil, have released triticale varieties for commercial production and that Kenya may release a triticale variety in the near future. In CIMMYT's view, the crop is believed to have great potential, particularly in areas of acid soils (Brazil) or serious disease problems such as stem rust (Kenya). Skovmand noted that in yield trials in Brazil on acid soils (pH of 4-5), triticale outyielded wheat by about a third. Dr. Klatt, Associate Director of the Wheat Program, noted that the first adopters of triticale have been the large growers, but viewed this as a necessary element in the introduction of a potentially useful new crop.

(iii) A recent frost on Mexico's Central Plateau appears to have seriously damaged the maize crop. One unofficial estimate was that, in consequence, maize imports would have to be increased by another 1-2 M tons this year.

5. The Apatzingan Irrigation Project. Members of the Appraisal Mission indicated that full appraisal is likely to be delayed because the government had not yet studied thoroughly the preparation report by consultants. Until this is done, project scope and content remain uncertain.

6. Address to COMPARMEX. This annual meeting of COPARMEX, in commemoration of 50 years of its existence, was opened by President Lopez Portillo and focused on four issues: food, employment, energy and inflation. Some 400 businessmen were in attendance. My address on the food situation was, I believe, well received. Several newspapers in Mexico carried stories on the address and, in general, provided a balanced coverage of its contents. References by Conference participants and the press to the World Bank were few, but positive, although a number of the participants probably knew relatively little about Bank operations. The President of COPARMEX, owner of a large agro-industrial concern in Sinaloa, said to me privately that my address may have overstated the potential benefits to Mexico of continued tenancy reform--a process which he believes was necessary but has now run its useful life and could only be extended at the expense of growth and efficiency in Mexican agriculture.

cc: Messrs. W. Clark (VPE)
M. Yudelman (AGR)
D. Pickering (AGR)
M. Lejeune (CGR)
J. Fransen (AGR)
P. Goffin (LCP)
N. Sharma/A. Otten (LCP)
D. Dutt (LC1)

TJG:vau

S-agric + RD

Mr. Graham Donaldson, Chief, AGREP

October 19, 1979

Colin Burce, AGR

Preliminary Comments on Trent Bertrand's Draft Paper on
Agricultural Prices, Taxes and Subsidies in Thailand

1. This draft paper of Trent Bertrand needs to be completely restructured and shortened. It is evident that Trent had interests in Thailand other than the study we asked him to do, and this is reflected in the unbalanced structure of the paper. Thus 56% of the main text--- 37% on Rural Labor Utilization (Chapter II) and 29% on Land Utilization (Chapter III)--- is taken up with very interesting analyses of labor and land markets; these analyses are useful for estimating the accounting prices for labor and land, but are not otherwise germane to what the paper is or should be about. Chapter IV is in fact what the paper should be about: Intervention in the Rural Sector.

2. The restructuring of the paper may not be such a formidable task as might appear at first sight. One would cut out Chapters II and III altogether--you might wish to consider publishing them as a separate Staff Working Paper--and restructure Chapter IV, incorporating summaries of Chapters II and III into it. Such a restructuring of the paper (renumbering the chapters) might look like this:

SUMMARY AND CONCLUSIONS

Chapter I: INTERVENTION IN PRODUCT MARKETS

- A - Rice)
- B - Sugarcane)
- C - Rubber)
- D - Other Crops)

(Sections A through D of Part I of Chapter IV)

Chapter II: INTERVENTION IN FACTOR MARKETS

- A - Labor (Summary of existing Chapter II)
- B - Land (Summary of existing Chapter III)

Chapter III: INTERVENTION IN MARKETS OF AGRICULTURAL INPUTS

- A - Fertilizers)
- B - Irrigation Water)

(Taken from Section E of Chapter IV)

Chapter IV: RESOURCE ALLOCATION EFFECTS (Part II of Chapter IV)

Chapter V: EVALUATION OF METHODOLOGY

- A - Theoretical Aspects)
- B - Practical Application)

(Taken from Appendix II Chapter IV)

continued ...

APPENDIX: CALCULATION OF SUMMARY INDICATORS OF MARKET INTERVENTION AND ECONOMIC PROFITABILITY (Existing Appendix I to Chapter IV)

I have yet to read the draft paper in detail and may have additional comments when I have done this, but I thought it would be advisable to send you these preliminary comments on restructuring the paper as soon as possible.

cc: kMessrs. Yudelman/Pickering, AGR
Scandizzo, AGREP

CBRuce:oh

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Files

DATE: October 16, 1979

FROM: B. S. Gray

SUBJECT: Rubber and Cocoa Pipeline

1. Based on recent discussions with J. Blencowe and Lim Poh Loh (FAO, Thailand), the following is for the record.

Rubber

2. In Thailand, apart from the 50,000 ha replanting program in which the Bank is involved, there is some 20,000 ha new rubber planting each year. By comparison with the former effort, which has comprehensive support, the latter program is less organized and is proceeding under "its own steam". However, competent private nursery contractors are available and are transporting planting materials (budded stumps and one whorl budgrafts in polybags) into the areas of expansion. This is rendered much more effective by the well organized planting material certification scheme in Thailand and by the fact that Thai farmers are now well aware of the advantages of high yielding planting material. If the Thai rubber regulations change and new planting can be supported under the scheme, then it is anticipated that annual new planting could rise to 40,000 ha/year with a total of 400,000 ha new planting in the next 10-12 years. This appears much more likely than the 1 million acres new planting which Malaysia is endeavouring to promote. At this rate, Thailand would overtake Indonesia as no. 2 producer. Most of the above new planting would be in the S.E. (Chantaburi), in Rayong, Chumpong and in the N.E. The areas of expansion are either under cassava, corn or steeper lands under shifting cultivation. Farmers are expected to have higher incomes from rubber than cassava. Intercropping with cassava would however be permitted. Of great interest is the promising early growth of rubber some 90 km north of Nong Kai in the N.E. (around 18°N with a pronounced dry season).

3. Several technicians from mainland China have recently been examining the Thailand rubber program and report 400,000 ha of rubber planted in the Yunnan and in Hainan at 18°-20°N. Clone GTI is said to yield 1,500 kg/ha in the Yunnan. The Chinese are said to have developed a haploid rubber tree from auther tissue. FAO staff (Lim and Blencowe) have been asked to visit China to lecture on rubber technology.

4. In Burma at Mitkvina (25°N) some 13 acres of rubber are in bearing. Yield data were not available.

5. An agency from Brazil is sending 10 staff to Thailand in 1980 for training in rubber cultivation. Rubber yields in Bahia (22°S) are said to be 1,500 kg/ha.

./...

6. The above examples illustrate an interesting and increasing trend for rubber to be cultivated under less than optimum growing conditions.

Cocoa

7. In Thailand, three possible projects for cocoa development are under preparation. CDC may be involved. In India (Kerala) there are tentative plans for planting 25,000 ha cocoa.

BSGray:mam
cc: Messrs. Carlier, Delsalle, Matheson, Prins, Pritchard, Greenwood, Green, Egli, Sidhu, Tamboli, Wijnand, Armour, Los, Portilla, Wallis, Draper, Coulter, Pee (EPD), Pollak, Goering, Temple, Price, Peberdy, Pickering

S-AGVC+RD.

October 16, 1979

Professor Roberto Melville
Centro de Investigaciones Superiores del I.N.A.H.
Calle 19, #20, Ciudad del Carmen
Campeche, Mexico

Dear Professor Melville:

I have just recently learned of your participation in the Mexican Lagoon Fisheries Experimental Project initiated by the Science and Technology Unit here at the World Bank.

The Bank is interested in organizing a seminar on socio-cultural variables in fisheries projects. The speaker would be invited to prepare a paper on those variables -- technological, economic, social and political -- which appear most important to success in increasing the efficiency and productivity of traditional fishing syetems; as such it should have clear relevance to Bank fisheries projects.

From what I have learned from Mr. Kamenetzky of the Science and Technology Unit, you would appear to be an excellent candidate for presentation of such a paper. Should you be interested, please send me a copy of your curriculum vitae and a sample of one of your publications. As this seminar is tentatively scheduled for late February, I would be grateful to hear from you soon.

Yours sincerely,

Peter B. Hammond
Agriculture and Rural
Development Department

PHammond/dad

cc: Messrs. Christoffersen, Davis

5 - agric + R D

October 16, 1979

Dr. Marilyn Hoskins
c/o Dr. David Shear
Mission Director
US A.I.D.
c/o American Embassy
Dakar, Senegal
West Africa

Dear Marilyn:

As I told you today when we spoke by telephone, the Bank is interested in sponsoring a seminar which would serve to identify for Bank staff the relevant cultural - that is economic, social and political - variables in forestry projects. The issue of land tenure, especially rights to public lands on which efforts at reforestation are so often undertaken will be a main focus.

Your experience in Africa working with problems of woodlot development and firewood use appears clearly relevant. I look forward to receiving your curriculum vitae so that we can explore further the possibility of your participating in such a seminar. I hope that you will call me when you return from West Africa in February. In the interim, I have asked Mr. John Spears' office for a copy of the draft paper on fuelwood you left with him.

It is good to be back in touch. All best wishes.

Sincerely,

Peter B. Hammond

bcc: Messrs. Christoffersen, Davis
PHammond/dad

S-AgricRD

Messrs. Berg, Grimshaw, Peberdy, and Tillier, WAP October 16, 1979

Ted J. Davis, Chief, RORSU

Project Officers' Review of Project Profiles F33L

I would very much appreciate your assistance in reviewing a small set of West African project profiles which have been prepared by my staff. These two-page profiles are summaries of project objectives and results extracted from appraisal and supervision reports. The effort is a test to determine whether, from a sample, we can answer questions from top management concerning results of rural development projects at advanced stages of implementation.

My staff has gone about as far as possible from existing documentation and we now need the comments and assessment of the staff members in charge of the projects.

Specifically, we would request the respective officers to: (a) review the profile for its content and comment on any material which is inaccurate or which should be put in a different perspective - e.g., less critical a situation than reported, or in need of updating; and (b) draft a short paragraph from their own observations on the expected economic and social impact of the project, particularly income effects.

A member of my staff will contact you Friday, October 19, to obtain your clearance before further pursuing this exercise with the project officers. We would like to schedule a brief interview with each of them to go over their comments.

Enclosures
CMartin/dad

cc: Messrs. M. Yudelman, AGR, L. Christoffersen, AGR

Info Center - F 338

Mr. Harold W. Messenger, PHN

October 15, 1979

→ Misc/PHN

Mr. Jay Satia

S-Agric & RD

Seminar on "Development of Supervisory/Managerial Skills"

1. As you had suggested, I attended the above seminar organized by Agriculture Department on October 11, 1979. The seminar was conducted by Mr. James C. Robinson and Mr. John Wilson of Development Dimensions International.

2. With the growth of the modern rural sector, a need for improving management of the projects in this sector has been felt in the Agriculture Department. The purpose of the seminar was to discuss the relevance of the experience of Development Dimensions International in developing supervisory and managerial skills, for the Bank projects.

3. The thrust of the seminar was as follows: supervisory/management training is usually not effective because of inadequate identification of real needs, emphasis on concepts and theory in the training, and lack of confidence in the use of specific skills on the job by the trainees. Behavior modeling, a training technique evolved in early 70's, has been found to be effective in developing skills. The technique consists of field diagnosis to identify needed skills, developing instructional objectives, packaging suitable training material to provide a positive and credible model of use of skill, practice of skills, and reinforcement on the job. Examples of the use of this technique were provided from AGWAY (a farmer's cooperative in northeastern U.S.), GE, AT&T, Baltimore Gas and Electric and Rhodesian National Railways.

4. The main thread of questions during the discussion was as follows:

a) An important problem in project management is finding effective, technically qualified, and politically acceptable managers. In many countries this is very difficult.

b) The problem may not be as much of skill as that of absence of managerial environment conducive to effectiveness.

c) Many managers are either not aware of the problem or do not accept a need for such programs.

Therefore, skill development may be only a small part of the answer to the problems of project management.

5. It was also felt that some examples of the use of this technique in developing countries were needed before it becomes acceptable.

6. Nevertheless, I felt this approach has some potential utility in our projects. Therefore, I am enclosing the handout distributed in the seminar which may be circulated in the department. If you feel it would be useful to elaborate on this technique during a staff meeting, I will be glad to do so.

cc: Dr. John R. Evans

S-agric & RD

October 12, 1979

Dr. Daniel W. Bromley
Department of Agricultural
Economics
University of Wisconsin
Madison, Wisconsin 53706

Dear Dan:

After reviewing the first draft of your paper, I found it very interesting and provoking. In particular, there are four major points you make that deserve specific mention: (a) the problem involved with the factor-price-equalization theory, (b) the role played by the "institutional uncertainty" hypothesis, (c) the adaptive behavior/lexicographic approach to production by small farmers, and (d) the river basin (system) approach to water management.

Before finalizing your second draft of the paper, some changes should be considered. First, it would be rather important to go back to the original outline, particularly to part III--Implications for Small Farmer Development. This chapter should consolidate your paper's chapters VII and VIII.

Second, the case studies should be related back to your main body of knowledge. As they are now presented, it seems to me, these cases are not usefully integrated.

Third, the "inefficiency in factor use" implications outlined in chapter II should be edited, emphasizing their implications from project planning and analysis.

Fourth, the "factor quality" hypothesis and the "institutional uncertainty" hypothesis should be related to small farmers' irrigation problems. Also, the definition of institutional uncertainty on page III-9, para. 2, should be moved up front. In addition, part D of chapter III should be related to the set of hypotheses. Finally, you might consider to discuss the extent to which the factor quality and institutional uncertainty hyp hypotheses are competing or complementary hypotheses and what the implications are in terms of project work. 1/

1/ You might consider here discussing the role these hypotheses play in stating assumptions with regard to farmers' adoption of new technical packages, farmers' willingness to change their water allocation systems and institutions, and the like.

Fifth, one should make reference as to the implications of the "adaptive behavior/lexicographic optimization by small farmers. One implication may be the way in which one looks at the "farm budgets" (based on farm models that are distinguished by differences in land tenure rather than on the farm location to the watercourse) in terms of the food crops packages, recommended in irrigation projects (i.e., maybe more emphasis on subsistence crops in a sequence with cash crops), or in terms of the type of project components which will enable farmers to expand their feasibility frontier and, also, make changes (attitudes) toward their "perceived" frontier. Some examples will help to understand this chapter a little bit better.

Finally, it may be useful to have a Preface where you mention some of the changes that took place from the original outline to the new outline.

I hope this letter will help you in finishing your second draft. We have agreed that the second draft will be ready by December 15. Maybe at time it might be useful to have a seminar to discuss your paper.

Sincerely yours,

Alfredo Sfeir-Younis
Resource Economist
Economics and Policy Division
Agriculture and Rural Development Department

cc and cleared: Graham Donaldson, Chief, AGREP

cc: F. Hotes

ASY:vau

Non-Regional file

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

October 12, 1979

S - Agric & R.D.

Dr. K. K. Framji
Secretary-General
ICID
48, Nyaya Marg, Chanakyapuri
New Delhi 110021
India

Dear Dr. Framji:

Your letter and invitation of October 4, 1979, are appreciated. Unfortunately, I am unable to accept the invitation.

On a related matter, Mr. Malone of the Bank has asked me if decisions have been made as to the inclusion of his proposed paper on Evaluation of Projects. We do not seem to have received an acceptance from ICID.

It was indeed good to see you last spring here in Washington. I do not know when my travels will again bring me to India, but you can be sure that when I do I will try to contact you.

Sincerely,

F. L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department

S-Agric + RD

October 12, 1979

Professor Per Pinstrup-Andersen
Economic Institute
Royal Agricultural University
Thorvaldsensvej 40
BK-1871 Copenhagen, Denmark

Dear Prof. Pinstrup-Andersen:

As Mr. Berg's cable stated, I have been nominated the point of contact between your work and our department.

The first stage of this research will take relatively little time and, therefore, it would be extremely convenient to have continuous interactions and exchange of ideas on this subject matter before the final draft is produced. I would suggest that, at the time you are ready to start writing such a draft, we have the opportunity to discuss your outline and approach to this research.

Attached to this letter are several documents and materials which Alan Berg and I thought relevant to your work. A short description of these materials may be useful to you.

(a) A document about the nutritional considerations for the Chatina Region in Mexico. This document was written by a consultant (draft version) as part of an overall IFAD rural development project.

(b) A document by Shlomo Reutlinger and Alan Berg about nutritional effects of agricultural projects on participating farmers. This document is close to some of the suggestions you make in your research proposal.

(c) These are several internal memorandums written by A. Berg which relate to the nutritional impacts of projects.

(d) In the early 70s, Mr. G. Desai was hired to look into the question of nutritionaliimpacts in a rather qualitative manner. A oollection of his opinions is attached.

(e) A mission to the Philippines in which A. Berg participated brought several materials related to the nutritional status of the population in the Island of Samar. Unfortunately, these materials did not xerox perfectly, but I hope you won't have problems in reading them.

(f) A memorandum from me to G. Donaldson may be of interest to you. The main objective was to put down the idea of a N.I.S. based simply on net income generated by projects. This net income is computed through farm budgets (from appraisal reports) and compared with the value of expenditure on a bundle of commodities which presumably would provide the basic calorie/protein requirement.

(g) Severalaappraisal reports were thought to be of interest in this study:

(i) Nepal Rural Development 2, Report No. 2401-NEP. Here, in Annex 3, an attempt was made to measure the "nutritional impact" of this project by estimating the number of days food would last "with" and "without" the project.

(ii) Papua New Guinea Rural Development Project, Report No. 1985-PNG. Here, an attempt was made to evaluate the nutritional consequences of changing from a subsistence crop to a cash crop.

(iii) Egypt's Basic Needs study, written by Lance Taylor,* makes reference to the role of subsidies to different commodities and their impacts on consumption. And

(iv) At the end of the Basic Needs Policy Paper (I guess you are well aware of it), there is an annex which refers to the role of agriculture research and its impact on different income groups.

Mr. Schebeck was going to search for additional material. As soon as these are collected, I will send them to you.

I will be out of Washington between October 14 and October 27.

Sincerely yours,

Alfredo Sfeir-Younis
Resource Economist
Economics and Policy Division
Agriculture and Rural Development Department

Enclosures

* P.S. Later information indicates that author is not Taylor but K. Ikram, with input from S. Basta.

ASY:vau

cc: G. Donaldson (AGREP), A. Berg (AGR), E. SCHEBECK (AGRNU), P. Scandizzo (AGREP)

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

Non-Regional File

OFFICE MEMORANDUM

TO: Mr. F.L. Hotes (AGR/CPS) DATE: October 12, 1979

FROM: D.C. Pickering (Assistant Director, AGR/CPS)

SUBJECT: TERMS OF REFERENCE - FAO Expert Consultation on Drainage Design Factors

S-agric + RD

1. Upon completion of your mission to Cyprus about October 20, 1979 (separate Terms of Reference), you should proceed to FAO Headquarters, Rome, Italy, to participate in subject consultation from October 22 - 27, 1979.

2. Upon completion of the Consultation and return to headquarters about October 29, you should prepare a brief Back-to-Office Report. When the meeting results are published, you should make suitable arrangements for dissemination of pertinent material to Bank irrigation staff.

FLHotes:rm

cc: Mr. Yudelman (Director, AGR/CPS)

S-agric + RD

Mr. C. E. M. Keil, Forestry Specialist, AEPA2 October 11, 1979

Mr. John Gregor, Acting Chief, AEPA2

Terms of Reference - PHILIPPINES: Attendance of "Coconut Wood - 1979" Conference in Manila and Zamboanga 22-27 October, 1979

1. Between two other missions in the East Asia & Pacific Region (separate terms of reference) you will, during the above-mentioned period, participate on behalf of the Bank in the international seminar on the utilization of coconut wood. During the seminar you should give particular attention to innovative methods of coconut stem removal which are linked to commercial uses of the wood matter, as opposed to the mere disposal of trunks without generation of income from the wood.

2. From the collective information conveyed by the lectures and demonstrations as well as through contact with the participants from different countries you should attempt to assess the practical significance of the various modes proposed for coconut wood utilization, bearing particularly in mind scale and cost of operations and potential for replicability. You will collect any relevant publications and data and circulate these in the Bank after your return to Washington together with your back-to-office report summarizing your observations, conclusions and contacts.

CKeil:dd

cc: Messrs. Yudelman, Pickering, B. S. Gray, Spears (AGR), Blaxall, Price, Wadsworth (AEP), Weiss, Goodland (PAS), Miss McDonald (IRD)
East Asia Files

S-envir+health
ROUGH DRAFT Agric & RD

See Addressees Below — October 9, 1979

THRU: Dr. James A. Lee, Office of Environmental Affairs
R. Goodland, Office of Environmental Affairs RG

Tropical Deforestation

1. Seven mitigatory measures are attached as rough draft for your comments or information and for possible use in projects where deforestation is judged to be unavoidable.

2. The fundamental concerns and risks associated with tropical deforestation were outlined in the materials issued by Dr. Lee on July 5 and August 23, 1979. Copies of UNEP's Governing Council resolution on tropical deforestation, and President Carter's Second Environmental message to Congress (dealing with tropical deforestation) are available on request.

Attachment

Messrs. C. Weiss, PAS
J. Coulter, CGR
G. Darnell, AGR
D. Pickering, AGR
V. Rajagopalan, PAS
J. Spears, AGR
T. Davis, AGR
B. Thoolen, AGR
J. Hanna, WA2
J. Blaxall, AEP
A. Golan, AEP
M. Walden, AEP
R. Wadsworth, AEP
M. Baxter, AGR
G. Homsi, LC1
A. Otten, LCP
C. Ramasubbu, LCP
R. Stern, AEA
K. Haasjes, LCP
P. Greening, LCP
D. Mahar, LC2
R. Skillings, LC2
F. Lethem, PAS
R. Overby, OEA
H. Reitze, OEA
J. Tixhon, OEA

Messrs. K. Venkatraman, LC2
Ms. H. Martinez, LC1
C. Watson, OEA
R. Latimer, OEA
D. Rubin, AGR
G. Davis, AEP
Messrs. C. Keil, ACR
H. Wagner, LCP
R. Fishwick, WAP
J. Martinez, LC1
F. van Gigch, WAP
J. Collins, AGR
J. Edgerton, AGR
B. Gray, AGR
R. Hewson, AEP
J. Greenfield, AEP
J. Wallis, LCP
M. Saddington, AEP
E. Senner, LCP
P. Whitford, AEP
F. Thomas, LCP
N. Brouard, AEP
J. Gorse, WAP
G. Krishna, AEP
O. Price, AEP
N. Sharma, LCP
L. Sonley, LCP
Peter Hammond c/o M. Cernea, AGR

RG:OMc

OFFICIAL FILE COPY

ROUGH DRAFT

Tropical Deforestation-Suggested Mitigatory Measures

1. The choice of the specific site for a proposed agricultural project is environmentally crucial. Some sites should be scrupulously avoided altogether, such as those tracts occupied or used by tribal or indigenous peoples. Bank policy is evolving in this regard (see CPN____: draft OMS Guidelines: Forced Resettlement). Forests known to act as refugia for species accorded special significance or protection by the sovereign state, also should be avoided. Projects should be sited to the fullest extent possible on cutover or degraded land. Bank projects should promote the maximally efficient use of land already cleared. If, however, environmental factors are outweighed by political or short-term, micro-economic judgments, deforestation can be mitigated to a limited extent by including all the following:

   a. Environmental Reconnaissance: This aids in site selection: tribal areas, special habitats or refugia completely avoided.

   b. Ecosystem Inventory: provides the opportunity to collect, salvage or study the tract before it is destroyed.

   c. Methods of Clearing: are ranked by degree of environmental damage in section ___.

   d. Preservation of protective forest along watercourses, and on slopes and around reservoirs and irrigation headwaters. The dimensions should be commensurate with slope, etc., and can be used as natural firebreaks.

   e. Use of Cut Forest: broadening the spectrum of species harvested. Use of less commercial species to the fullest extent possible.

   f. Reforestation Component: Any project involving deforestation can be improved by the inclusion of significant and effective reforestation components near the project or elsewhere.

g. Compensatory Preserve: the establishment of forest preserves comparable or commensurate with the tract removed helps compensate for the loss; this includes strengthening or augmenting the national park system. Such preserves can be near the project area, adjacent to existing preserves, or elsewhere.

h. Sustained-yield agro-ecosystem: Inclusion of a national research component to promote systems of harvest from as yet undisturbed forest that leaves the vegetation intact. Education, training and extension of the results ( ), the socio-economic rules of a sustained-yield, non-expanding economy, tuned to the concept of living within the carrying capacity of the country's or region's resources.

2. The Bank's recent (February 1978) forestry sector policy paper clearly specifies a higher priority than hitherto for protection of forests, emphasizes the environmental benefits of forestry projects, and warns of the devastating destruction from deforestation. Where a project designer considers some deforestation unavoidable, then it should always be accompanied by the mitigatory measures noted.

✓ S-agric + rural devel.
S-envir + health

Graham Donaldson, Chief, AGREP — October 5, 1979

Alfredo Sfeir-Younis, AGREP

EAST-WEST CENTER, Environmental Policy Institute
- Extended Benefit-Cost Analysis: Incorporating Natural Resources and Environmental Factors in Economic Development Planning (BCAEF)
- Back-to-Office Report

THE CONFERENCE

1. The main objective of the conference was to discuss the validity and applicability of several concepts and methods recently developed in the area of resource economics and management. The analytic framework used to test such validity and applicability was benefit-cost analysis, employed in preparing and appraising development projects. Therefore, the expected outcome of the conference was defined as a list of areas for collaborative research which would take into account the topics discussed in the conference.

2. To accomplish such a set of objectives, the East-West Center invited people from developing countries who are using BCA, people from academic institutions and research organizations who are devoted to fundamental research in these areas, and people from international organizations who use BCA in the preparation and appraisal of development projects (the list of participants is attached).

3. The conference consisted of three parts: (a) addresses by invited speakers, (b) workshop sessions, and (c) plenary sessions. The invited speakers presented papers or statements of their own; they talked about numerous subjects, from resource conservation to the specific requirements of Environmental Impact Statements (EIS). There were three workshops: the first was devoted to discussion of the institutional framework and of the environment in the application of BCA; the second was devoted to analyzing existing techniques to evaluate environmental benefits and costs; and the third was devoted to discussing issues related to the formulation and evaluation of forestry, land use, fisheries, and rural development projects. The plenary sessions, which I could not attend, were supposed to put together the invited papers and the materials discussed in the workshops.

4. The Bank's participation (myself in this case) was at all levels except during the plenary sessions. I spoke about resource management and economic development in general (see paras. 6-16), presented two short notes during the workshop seminar, and chaired Workshop III.

5. Since the conference covered many subjects, only a summary of my intervention as invited speaker and of some of the most relevant topics covered by the conference will be outlined here.

RURAL DEVELOPMENT AND RESOURCE MANAGEMENT

6. Soon after the invited speaker had spoken at the conference, I realized that it was inappropriate to talk about the technical notes I had brought with me. An outline of my intervention follows.

7. After making very explicit that "the views and interpretations ... are those of the author and should not be attributed to the World Bank ...," I stated that several development dimensions of resource management problems deserve special attention. Most resource management problems have (a) a development dimension--one can classify projects under a policy umbrella which is geared to optimally use available natural resources; (b) a choice dimension (in terms of policy and project levels)--where the most important choices are intergenerational rather than intragenerational; (c) an asymmetric dimension--where one has to recognize several imbalances which occur due to changes in supply and demand, technology, microeconomic policies, institutions and organization, and the like; and (d) a compensating dimension--where counterbalancing (i.e., in money terms or in kind) usually takes place between two parties (i.e., for cutting less trees, using less water, replanting).

8. One of the most interesting dimensions of the problem is in terms of choices and how a policy strategy may induce changes in institutions (i.e., water rights, communal lands) and in development projects. I stated that to achieve intergenerational equity and simultaneously move toward the optimal state of conservation of those resources available to poor people, the Bank established its Rural Development Policy. Implicit in this policy are several important characteristics: (a) the need to improve and sustain productivity, (b) the need to reach large numbers of poor people living in rural areas, (c) the need to formulate self-sustained programs, and (d) the need to find projects that are replicable.

9. In recognition of existing investment imbalances across sectors--between industry and agriculture--conservation policies that will benefit large numbers of people required the definition of "new style projects" that would have a built-in mechanism to move the farmers economy to an ecosystem balance. Imbalances are due to population pressures, large demand for food and energy products (forest), lack of appropriate production and distribution technologies (i.e., harvesting losses), lack of appropriate institutions at the farmers level, among others.

10. One of the examples of such policies at the sector level--within the umbrella of the Rural Development Policy Paper--is the Forestry Policy Paper. I stated that the move toward an environmental approach to forestry was needed to satisfy multiple demands: (a) provide energy to rural people,

(b) protect water catchment areas and existing irrigation infrastructures, and (c) generate income. To provide energy to rural people, the Bank considers the production of fuelwood which provides fuel for cooking and other purposes and substitute other sources of energy--usually used as fertilizer (i.e., cow dung). This latter substitution has, in turn, beneficial effects on soil and water conservation. To establish forest programs to protect water catchment areas will have important beneficial effects with regard to soil erosion and canal (or reservoir) siltation. Finally, to generate income for rural people, the Bank looks into the optimal combination of tree species that would simultaneously accomplish environmental objectives and income goals: to bring in cash crops (or short rotation varieties), to plant fodder trees, and to produce wooden poles for construction in rural areas. In addition, forestry can be used as an income-compensating activity for those people who have to resettle because of irrigation infrastructures (i.e., dams).

11. These ingredients make our program a "social forestry" oriented program rather than a simple forest (i.e., tree) oriented program.

The Project Cycle

12. Choices are made all along the project cycle (i.e., from identification to evaluation), and I suggested that the most important choices with regard to resource conservation problems are at identification and preparation--when planners decide about trade-offs across sectors, location, target groups, size, sequencing and the like.

13. Within this overall process, one can find three types of projects: (a) those projects that are directly geared to produce environmental balances like afforestation programs, (b) those projects where alternative design options are available and where a great effort is made to minimize environmental damages, and (c) those projects where an EIS is written during appraisal.

14. During the appraisal of forestry projects, several of those problems (choice, imbalances, compensation), discussed by resource economists, come into play. Some of them are the valuation of fuelwood (this will be discussed in a separate section of this memorandum), the long-term trade-offs involved when high or low migration to urban areas is taking place, and design problems which tend to depress the high rate of social time preferences, leading to conservation.

15. In countries with high migration rates to urban centers, the demand for fuelwood might decrease while the demand for other sources of fuel might drastically increase.

16. One of the most recognized causes of resource depletion--in this case forest depletion--is the low-income level of people in rural areas and, consequently, their high rate of social time preference. This factor forces

project planners to focus on two very important aspects of social forestry programs: (a) there must be a built-in mechanism for compensation: somebody, or a whole village, has to be compensated for the time spent replanting trees; Bank projects deal with this issue by paying, for example, the existing wage rate or providing villagers with food--all decrease the rate of social time preferences; (b) there must be income-generating activities resulting from planting trees--several farm models have been applied, using only the perimeter of the farms for tree planting; using part of the farm (this solution competes with food crops for the limited amount of land available); and using publicly owned land where each individual will share in the output from it.

Problems with Conservation Policies

17. Since the conference intended to come out with a shopping list of research materials and programs, I mentioned the following problems faced by conservation policies and programs. (a) Environmental or resource conservation plans are not being a part of the overall national development plans; there is a need to integrate these plans to optimally allocate resources (intra- and intergenerationally). (b) While the "old" style development programs emphasize the hardware aspects of productivity and growth, resource conservation puts a major strain on local institutions and organizations; a careful study of the role of institutions dealing with resource conservation in development is required. (c) Since resource conservation programs need longer gestation periods, these programs have to be designed in such a way that local people identify them as a source of wealth and income. And (d) there is a need to study the major imbalances stated earlier (i.e., supply and demand, technology, macroeconomic policies, institutions) to understand the role development projects play in achieving an acceptable state of resource conservation.

VALUATION PROBLEMS

18. The evaluation of most conservation programs faces major problems in valuating their benefits and costs. In listing some of the approaches I suggested at the conference, major emphasis is put on forestry and fisheries. Irrigation, soils, and land use planning were also discussed and only minor references will be given here.

The Travel Cost Method (TCM)

19. The travel cost method has been used to evaluate benefits from recreational areas. The TCM consists simply of estimating the willingness-to-pay of individuals who are visiting such recreational areas as national parks, hunting areas, and wild reserves. I suggested that this method can be applied to forestry (willingness to pay for fuelwood), to fishing (the amount a fisherman needs to be compensated if he has to forgo a fishing trip), to village water supply (to determine the shadow price of drinking

water), and to grazing (to determine the shadow price of grazing lands). In all these activities, a trip to the source of benefits is required, as when one has to travel to get to a national park.

Valuation of Fuelwood

20. Several methods for valuing fuelwood were discussed at the conference, one already mentioned earlier (e.g., TCM). These methods are: (a) "market price" approach and (b) "surrogate method," where one can use the price of another source of energy (i.e., kerosene) or of a close substitute (i.e., cow dung) and measure the net benefits forgone as a proxy for benefits.

Valuation of Fodder

21. Most of the methods used are of the "surrogate" type; one assumes that fodder is an input, let's say, for milk, animal power, or fertilizer (cow dung). In the Bank we have used all of these surrogates.

Land Use Classification

22. Following the discussion on the rules-of-thumb proposed in my paper on canal lining (i.e., to find the switching value of the seepage losses coefficient to determine what part of the canal should be lined), I proposed the same method for determining the switching value of a "soil productivity" coefficient for land use planning and soil conservation programs.

Role of Institutions in Economic Efficiency

23. The conference participants clearly recognized the need to understand and quantify the role, and the impact, of changing socioeconomic--mostly nonmarket--institutions (i.e., cooperatives, property rights) on the economic performance of projects. The role of these "nonquantifiable" factors was thought to be a major subject for study.

International Trade and the Environment

24. International trade patterns were thought to be affecting the way in which multinational corporations are investing in developing countries. Some of these investments (i.e., steel, textiles) are very pollution-intensive industries. There is a need to study how macroeconomic policies of some countries are in fact inducing international transfers of pollution.

Aquaculture as a Water Conservation Mode

25. The optimal size of a fish pond can vary, depending upon biological, economic and social factors. I suggested that in certain areas of the world, where water is a scarce resource, one might consider changing the size of the ponds to account for water conservation objectives.

26. Several other subjects were covered by the conference. Some of them, listed in the previous paragraphs, may be the focus of part of my research program in the future.

Attachment

ASY:vau

cc: D. Pickering (AGR)
B. Abbai (AGREP)
T. Goering (AGREP)
G. Temple (AGREP)
A. Ray (PAS)

S-Ag. & Rural Devel.

Messrs. Haasjes, Otten, and Ramasubbu, LAC October 4, 1979

Ted J. Davis, Chief, RORSU

Project Officers' Review of Project Profiles

I would very much appreciate your assistance in reviewing a small set of Latin American and Caribbean project profiles which have been prepared by my staff. These two-page profiles are summaries of project objectives and results extracted from appraisal and supervision reports. The effort is a test to determine whether, from a sample, we can answer questions from top management concerning results of rural development projects at advanced stages of implementation.

My staff has gone about as far as possible from existing documentation and we now need the comments and assessment of the staff members in charge of the projects.

Specifically, we would request the respective officers to: (a) review the profile for its content and comment on any material which is inaccurate of which should be put in a different perspective- e.g., less critical a situation than reported, or in need of updating; and (b) draft a short paragraph from their own observations on the expected economic and social impact of the project, particularly income effects.

A member of my staff will contact you Monday, October 8, to obtain your clearance before further pursuing this exercise with the project officers. We would like to schedule a brief interview with each of them to go over their comments.

Enclosures
CMartin/ddd

cc: Messrs. M. Yudelman, AGR, L. Christoffersen, AGR

INTERNATIONAL COMMISSION ON IRRIGATION & DRAINAGE

COMMISSION INTERNATIONALE DES IRRIGATIONS ET DU DRAINAGE

S-Agric & R.D.

CENTRAL OFFICE
48, NYAYA MARG, CHANAKYAPURI
NEW DELHI - 110021 (INDIA)

TELEGRAMS : INTCOIR
TELEPHONES : 376837, 375679, 375962

Our Ref. No. C.15(81)/9317

Dr.F.L.Hotes,
I.B.R.D.,
1818, H Street, N.W.,
Washington D.C. 20433,
U.S.A.

4 OCT 1979

Dear Dr.Hotes,

You are sure to know that our Eleventh Congress on Irrigation and Drainage is being organized in Grenoble in August-September, 1981. Two basic questions, Q 36 and Q 37 will be discussed and a Special Session and a Symposium will also be held. The title of Question 36 is "Improvement and modernization of existing irrigation and drainage systems". We have since circulated the information about the Eleventh Congress to all our National Committees and others and have pleasure in enclosing a copy of our Circular pertaining to the 1981 Congress and containing scopes of Questions, Special Session and Symposium.

The last International Executive Council meeting of this Commission was held in Rabat in May last where the Permanent Paper Committee recommended, and the Council approved, the panel of experts for Question 36 and , inter alia, at my suggestion included your name in the list of panel of experts, knowing well your expertise in matters relating to Q.36.

We have started conducting the technical sessions of our Congress to a new modus operandi, and at the last Congress held in Athens in 1978 Q.33 "Economic Evaluation of Irrigation Projects -Studies Developed and case Studies of Economic and Environmental Impacts" was discussed according to this new procedure. Two members of the World Bank participated at the Tenth Congress (Mr.Meinzes and Mr.Harris) and Mr.Harris acted as one of the panel experts for Q. 33. I am enclosing a copy of the note on the new procedure for conducting technical sessions.

The duties of the panel member are to select paper for pre-discussions in the panel and for open discussions during the plenary sessions and to ensure that concrete conclusions and recommendations are formulated after the Sessions for follow-up action.

Mr.L.R.Swarner of the U.S. National Committee has been selected as General Reporter for Q.36 and other panel members selected in addition to you are (1) Mr.Boumendil (France), (2) Mr.J.I. M.Dempster (Great Britain), (3) Mr.J.H.Singh (Guyana), (4)Mr.S. Watanabe (Japan), (5) Mr.Azib M.Hamed (Morocco), (6) Mr.Keng or Mr.Shih or Mr.Wen (Rep. of China), (7) Mr.C.J.McAndrews (Canada), (8) Mr.Federico Balbontin (Spain),(9) Mr.Joseph B.Summers (USA). The Council has decided that the panel experts should have a

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Our Ref. No.

pre-nominated substitute and there should be pre-assurance that every effort be made by the expert (and the reserve substitute) to stay throughout the proceedings of the Session. In view of the above, the reserve substitue from FAO or IBRD is also to be appointed. I shall be grateful if you kindly suggest a suitable name keeping in view the decision of our Council.

I will very much appreciate if you kindly convey your concurrence to be a panel expert on Q. 36 at the Grenoble Congress. Your suggestion about a reserve substitute would also be most welcome. Our next Council meeting is scheduled to be held in Cairo in early April 1980 and, therefore, we will be grateful to receive your reply before 30 November 1979 for inclusion in the printed agenda of the Cairo meeting. May we hope to see you in Cairo ?

With best regards,

Yours sincerely,

K.K. Framji
Secretary-General

Encl: 1) Copy of circular-Congress 1981

2) Note on the new procedure f/or technical Sessions

KKF/BCG/kbr

yellow

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Messrs. Price, Smith and Wadsworth, EAP

DATE: October 2, 1979

FROM: Ted J. Davis, Chief, RORSU

S-agric + RD

SUBJECT: Project Officers' Review of Project Profiles

I would very much appreciate your assistance in reviewing a small set of East Asia project profiles which have been prepared by my staff. These two-page profiles are summaries of project objectives and results extracted from appraisal and supervision reports. The effort is a test to determine whether, from a sample, we can answer questions from top management concerning results of rural development projects at advanced stages of implementation.

My staff has gone about as far as possible from existing documentation and we now need the comments and assessment of the staff members in charge of the projects.

Specifically, we would request the respective officers to: (a) review the profile for its content and comment on any material which is inaccurate or which should be put in a different perspective - e.g., less critical a situation than reported, or in need of updating; and (b) draft a short paragraph from their own observations on the expected economic and social impact of the project, particularly income effects.

A member of my staff will contact you Thursday, October 4, to obtain your clearance before further pursuing this exercise with the project officers. We would like to schedule a brief interview with each of them to go over their comments.

Enclosures
CMartin/dad

cc: Messrs. M. Yudelman, AGR, L. Christoffersen, AGR

S-environ. & health
S-Agric & R.D.

October 2, 1979

Dear Gordon:

It was very pleasant discussing the goals we share with you recently in London. I am delighted you have agreed to help the Bank by contributing to the enclosed draft guidelines on "Environmental Aspects of Agricultural Projects."

The aim of these guidelines and the audience addressed are outlined in the introduction.

You are requested to read the whole draft (about 110 pages) and mark it up all through. If you want another copy now or when your comments have been incorporated, please let me know. During this mark-up, please correct any factual errors and, more importantly, omissions. Please add phrases, lines or paragraphs wherever you feel they would improve the whole.

From the table of contents you will be able to see what remains to be done. Please add any sections or topics you feel should be addressed. Your views on potential reviewers or contributors would be appreciated, as well as suggestions on how to increase the effectiveness of the guidelines. But mainly,, at this stage, your improvements (say the equivalent of two paragraphs per guideline) are required.

With many thanks and best wishes,

Sincerely,

RG

R.J.A. Goodland
Office of Environmental Affairs

Encs.

Dr. Gordon Conway
Center for Environmental Technology
Imperial College
48 Princes Gardens
LONDON, SW7 AZ
England

RG:on

5-environ & health
✓5-, agric & rural dev.

October 2, 1979

Dear Mr. Huguet:

Your proposal of December 29, 1978, to improve land management and agricultural projects in general was most welcome here. As we discussed in your office on February 23, the Office of Environmental Affairs is preparing some guidelines entitled "Environmental Aspects of Agricultural Projects." The table of contents of the incomplete draft is enclosed.

At the moment, this draft is about 100 double-spaced pages. In view of your request to establish a dialogue, would you consider reviewing these guidelines? At this stage, what is wanted is a general informal review. Later, when they have been improved, no doubt they will be submitted to FAO for your official approval. I enclose the introduction so that you can see our objectives and the audience at which we are aiming.

I hope you can find the time for unofficial comments on this document. Please let me know if I may send them to you.

Meanwhile, a recent paper on Amazonia is also enclosed.

All best wishes,

Sincerely,

RG

R. Goodland

Office of Environmental Affairs

Encs.

Mr. Louis Huguet
FAO
Via delle Terme di Caracalla
00100 Rome, Italy

RG:on

S - AG & Rural Devel.

Messrs. Price, Smith and Wadsworth, EAP October 2, 1979

Ted J. Davis, Chief, RORSU

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A member of my staff will contact you Thursday, October 4, to obtain your clearance before further pursuing this exercise with the project officers. We would like to schedule a brief interview with each of them to go over their comments.

Enclosures
CMartin/dad

cc: Messrs. M. Yudelman, AGR, L. Christoffersen, AGR

VS-agric + RD
LACIC

Mr. T. James Goering, AGREP

October 2, 1979

Graham Donaldson, Chief, AGREP

Terms of Reference - Mission to Mexico

1. During your forthcoming trip to Mexico (October 15-19, 1979), you will:

(i) visit CIMMYT to discuss with appropriate staff their policy seminar work and present a seminar on the Bank's Policy Paper on Agricultural Research (October 15);

(ii) join in discussions with the Bank Appraisal Mission for the Apatzingan Irrigation Rehabilitation and Expansion Project in Mexico City (October 16-17);

(iii) present an address on the world food situation to the Conference of the Confederación Patronal de la República Méxicana (COPARMEX) (October 18).

2. Upon return to Bank headquarters on October 22, you will prepare a brief back-to-office report.

cc: Messrs. M. Yudelman (AGR)
D. Pickering (AGR)
P. Goffin (LCP)
N. Sharma (LCP)
D. Dutt (LC1)

TJGoering:vau

S-agric + R.D.

Ms. Tufan Kolan, PMD

September 25, 1979

Ted J. Davis, AGROR

Draft Terms of Reference for the Editing for the Proposed Handbook, "The Socio-Cultural Variables in Rural Development Projects"

I. Background

The Rural Operations Review and Support Unit (AGR/CPS) has held a series of Bank Seminars on Sociological Aspects of Project Work. This series has been supported financially by the Training Division of Personnel and has been popularly received and well-attended. The papers presented at the seminars (a list attached) are recognized as a valuable source for developing a volume which is intended to serve as an aid in training Bank staff to be more aware of the sociological implications of development projects. The papers selected for inclusion in the volume discuss sociological considerations according to a sectoral framework. They form, in this way, a comprehensive document identifying the crucial sociological problems for implementing project components in irrigated and rainfed agriculture, livestock, resettlement, credit, and rural roads. The handbook will assist Bank staff to be attentive both to the social problems of development and to the use of sociologists in Bank work.

II. Terms of Reference

1. To bring the handbook into appropriate form an editor/researcher is required who would work closely with the professional sociologist in RORSU and who would be responsible for:

a) developing a production schedule
b) determine the format of the volume -- its length and organizing format
c) confirming the selected papers
d) editing and initially revising the manuscripts for a standardized style of presentation in accordance with the organizational framework adopted in (b) and
e) initiating work on the preface, conclusion, table of contents, and the index.

2. After the format of the book is made final, it will be necessary to begin and maintain the correspondence with the authors regarding all editorial revisions and for the final confirmation of the selected papers.

3. It will also be necessary to develop a liaison with the relevant Bank publication committee to ensure that the book is in the proper format.

Attachment

TJDavis/cc

Sociology file

THE SOCIO-CULTURAL VARIABLES IN RURAL DEVELOPMENT PROJECTS

Table of Contents

Rural Roads Projects

9. "Socio-cultural Issues in the Desgin and Implementation of Rural Roads Projects " (45 pp.)

Heli Perrett and Francis Lethem

10. "Conclusions" (20 pp.)

11. Annexes

OFFICE MEMORANDUM

TO: Mr. D.C. Pickering (AGR/CPS) DATE: September 24, 1979

FROM: J.C. Collins (AGR/CPS) JCC

SUBJECT: Guidelines for Planning Environmentally Sound Small-Scale Agricultural Projects

1. The subject publication by the Mohonk Trust is a very well intentioned and wide-ranging book. However, as a "Guideline for Planning" of any agricultural project it is extremely superficial in its treatment of such fundamental planning operations as land and water suitability, the consideration of production alternatives and the investment input requirements of selected farming systems. It just isn't a "Guideline for Planning", and anyone using it as a manual on which to base a planning exercise is going to do some irreparable harm. On the other hand, it also has shortcomings as a guideline for the use of people engaged in consideration of the environmental aspects of agricultural development proposals. It is too broad in scope and places too much emphasis on agricultural as opposed to environmental concerns to be of value to the layman, while the agriculturist engaged in planning should already have considerably more knowledge on such matters than can be gleaned from this text. If he hasn't then he will not be capable of sound planning anyway.

2. There are innumerable examples of the above sorts of problems, but perhaps the following will illustrate the cause of my concern:

(a) On page 11 the risks involved in monocropping, as opposed to mixed cropping, appear to be limited to increased risk of pests and diseases. As this risk increases in proportion to the extent of the area under the single crop, it is hard to see how "small-scale experimentation" could be helpful in evaluating the risk. However, other monocropping risks would include:

(i) more rapid and serious depletion of particular crop nutrients removed by that specific crop;

(ii) greater exposure to serious losses from adverse climatic abnormalities---wind, flood, frost;

(iii) greater susceptibility to varietal genetic changes in the crop resulting in reduced yield; and

(iv) development of a serious weed problem due to selection for species adapted to the monocrop environment.

(b) While some effects of irrigation development are listed on pp 33 and 34, the study of an area prior to design of an irrigation scheme would need the services at least of a soil surveyor/land classifier, an irrigation engineer, an agriculturist and an agricultural economist. Without such a multidisciplinary team, able to call upon assistance from specialists in such fields as drainage, hydrology, waterborne diseases, fisheries, forestry, etc., as and when necessary, even the identification---much less the design of an appropriate project---is likely to make serious errors. The "instant expert", after reading Chapter 4 of this book, wouldn't be equipped to even begin the highly complex evaluation of the available resources and correctable constraints on which such a suitability classification is based.

(c) On p 28 the major cause of soil salinisation is considered to be inadequate drainage, but there is no indication how the drainability of a particular soil might be evaluated. In any case, lack of adequate drainage leading initially to waterlogging may not lead to salinisation if the waterlogging is intermittent. Waterlogging can also arise through overirrigation, or through side-hill seepage brought about by heavy irrigation up slope, and the presence of a deep impermeable feature which slopes less sharply than the land surface. Salinisation can be due to elevated water tables but, also, to low application rates of irrigation water in the absence of flushing of salts from the root zone by seasonal rainfall or a leaching application. Drip irrigation is particularly prone to the problem of salt accumulation around the wetted sphere below each emitter, to the extent that the irrigation has to be maintained during periods of rain until the accumulated salts have been leached out.

(d) Some of the generalisations on crop nutrition are not always applicable. For example, legumes will only be efficient nitrogen fixers if the appropriate microorganism is present and can multiply. Adverse soil conditions may prevent this. While incorporation of plant residues and green manure may be beneficial in increasing soil nutrient levels and improving structure, the rapid multiplication of bacteria and fungi engaged in breaking down the organic material can severely deplete soil nutrient levels over the short term, leading to acute nutrient deficiency in a crop.

(e) The chapter on pesticides is confusing in its failure to differentiate between materials for weed, pest and disease control in many instances. There is no attempt to weigh the benefits of a particular characteristic such as persistence against its risks. Nor is there any real attempt to compare application techniques which, together with improper handling, are probably the cause of a large part of the accidental pollution incidents.

3. In summary, it would seem to me that books of this sort are inherently dangerous, and publications of this nature should aim to address a much narrower audience with a much narrower range of expertise. A guideline on the environmental aspects to consider in agricultural development planning could omit much of the purely agricultural or engineering subject matter, leaving this to those people qualified to write the detailed guidelines of use to experts in those particular fields.

JCCollins:rm

cc: Dr. Lee (PAS)

S-agric + R.D

Those Listed Below

September 21, 1979

Jim Goering, AGREP

Working Group on Energy and Agriculture

I have been asked by Mr. Donaldson to expand our work program on energy and agriculture as a prelude to preparing a policy paper in this area. A major concern presumably should be the implications of rising real energy costs for the Bank's agricultural and rural development lending activities. I believe a small, informal working group or steering committee would be useful in this regard, and I invite you to consider participating in this way. I see our first major function being that of sharing ideas, research reports, other relevant information in order to begin to determine what the policy issues may be and how we can address them effectively. I would not want the workingoof this group to become a formal; time-demanding activity. I welcome your response. Are there others who would be useful participants?

cc and cleared with: Mr. G. Donaldson, Chief, AGREP

Distribution:

Messrs. J. Collins (AGR)
F. Hotes (AGR)
C. Lewis (AGREP)
J. Spears (AGR)
D. Hughart (EWT)

cc: Messrs. M. Yudelman (AGR)
D. Pickering (AGR)

TJG:vau

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Chiefs, Agriculture & Rural Development Divisions DATE: September 18, 1979

FROM: Graham Donaldson, Chief, AGREP

SUBJECT: IRRI Publications on Agricultural Engineering

During a recent seminar in the Bank, Mr. Bart Duff promised to make available a bibliography of IRRI publications on agricultural engineering and related topics. A copy is enclosed for your information.

cc and cleared: Mr. D. Pickering

cc: Mr. M. Yudelman
Mr. C. Collins

GDonaldson:mt

B I B L I O G R A P H Y

AGRICULTURAL ENGINEERING DEPARTMENT
THE INTERNATIONAL RICE RESEARCH INSTITUTE

June 1979

INTRODUCTION

The materials listed in this bibliography represent the major publications, articles, and working papers of the Department from 1963 to 1979. Efforts will be made to fill reasonable requests for reports and reprints which are available in adequate numbers. Inquiries should be directed to the Department of Agricultural Engineering, IRRI, P. O. Box 933, Manila, Philippines.

I. FIELD OPERATIONS, MACHINERY AND IMPLEMENTS

A. Irrigation and Irrigation Equipment

1. Thongtawee, N. "Measurement of Evapotranspiration and Water Losses in Flooded Fields". Research Project conducted under the supervision of Mr. L. Johnson.

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**10. Duff, B. 1972. "Mechanization and Employment in Philippine Agriculture: Some Empirical Evidence". Paper presented at the Seventh Session of the IRC Working Party on Agricultural Engineering Aspects of Rice Production, Processing and Storage, November 3-6, Bangkok.

*11. Estioko, I. 1972. "CB:IBRD Farm Mechanization Credit Program: Philippines", in Experience in Farm Mechanization in South East Asia, edited by H. Southworth and M. Barnett (New York: Agricultural Development Council, 1974).

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*16. Duff, B. 1978. "The Economics of Small Farm Mechanization in Asia". Agricultural Mechanization in Asia, 9(2):11-23. Also available as Paper No. 77-11.

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*Mimeographed reprints of these published articles are available from the Agricultural Engineering Department.

**Out of print. Xeroxed copies available upon request.

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B. Comparative Economic Studies of Rice Production and Processing

1. Alibucsan, L. C. 1964. "The Rate of Substitution of Man-Hours by Animal or Machine Horsepower Hours in Rice Production". August.

2. Barker, R., S. Johnson, N. Alviar and N. Orcino. 1969. "Comparative Economic Analysis of Farm Data on the Use of Carabao and Tractor in Lowland Rice Farming". Paper presented at the Farm Management Seminar with Focus on Mechanization, U. P. Institute of Small-Scale Industries, Manila, Feb. 24-March 1.

3. Johnson, S. 1969. "Terminal Report on the General Engineering and Economic Research Portion of Contract No. AID/csd-834".

4. Toquero, Z. and B. Duff. 1974. "Survey of Post-Production Practices among Rice Farmers in Central Luzon". Saturday Seminar Paper, September 7.

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C. Economic Aspects of Machinery Manufacturing and Marketing

1. Johnson, L. 1967. "Comments, Definitions, and Personal Opinions to Explain the Tropical Rice Producers' Conditions and Problems of Machinery Manufacture". Project Committee Meeting of Contract No. AID/csd-834.

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2. Cabanos, P. 1971. "Jeepney Manufacturing in the Philippines, A Model for Developing the Agricultural Machinery Industry". Agricultural Mechanization in South East Asia, Vol. 2. (reprint).

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4. Juarez, F. 1976. "A Profile of the Power Tiller Manufacturing and Distribution Activities in the Philippines". Paper presented at the Seminar-Workshop on the Manufacturing and Distribution of IRRI-Designed Equipment, The International Rice Research Institute, Los Baños, Laguna, July 26-27.

5. Gutierrez, S. 1976. "IRRI Industrial Liaison Activities: Philippines". Paper presented at the Workshop on the Manufacture and Distribution of IRRI-Designed Agricultural Equipment, IRRI, Los Baños, Laguna, July 26-27.

6. Langam, N. and J. McMennamy. 1976. "Manufacturing Cost and Control". Paper presented at the Workshop on the Manufacture and Distribution of IRRI-Designed Agricultural Equipment, IRRI, Los Baños, Laguna, July 26-27.

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9. Follosco, C. L., J. McMennamy and B. Duff. 1978. "Multi-country Cooperation in the Manufacture of a Light Vehicle". Paper presented at the 1978 Winter Meeting of the American Society of Agricultural Engineers, Palmer House Hotel, Chicago, Illinois. December 18-20.

VI. THESIS DISSERTATION

1. Manalo, A. S. 1970. "Design Data on Counterflow Drying of Rice". Master of Science in Agricultural Engineering, University of the Philippines, Los Baños, Laguna. March.

2. Rewan, Waranya. 1973. "Case Study of an Engine Manufacturing Firm in Thailand". Master of Science in Economics. Thammasat University, Thailand. June.

** Out of print. Xeroxed copies available upon request.

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3. Somboonsub, Nopmanee. 1974. "Rice Milling Technology and Some Economic Implications: The Case of Nakorn Pathom, Thailand". Master of Science in Economics, Thammasat University, Thailand. March.

4. Chinapant, Ungthip. 1974. "Demand for and Marketing of Domestically Produced Small Farm Tractors in Thailand". Master of Science in Economics, Thammasat University, Thailand. June.

5. Pinthong, Chirmsak. 1974. "Economics of Small Tractor Production in Thailand". Master of Science in Economics, Thammasat University, Thailand. June.

6. Alkuino, Jose M. Jr. 1974. "Utilization of Improved Rice Processing Facilities in Camarines Sur". Master of Science in Agricultural Economics, University of the Philippines, Los Baños, Laguna. November.

7. Samuel, Jose. 1975. "Water Jet Pumps for Low Lift Applications". Division of Agricultural Engineering, Indian Agricultural Research Institute, New Delhi, India. July.

8. Khan, Mozammel Haque. 1975. "Improvement of Savonious Rotor-Windmill". Master of Science in Agricultural Engineering, University of the Philippines, Los Baños, Laguna. August.

9. Hirunvanichargorn, Umpun. 1976. "Locational Pattern of Rice Mills: A Case Study in Changwat Nakorn Pathom, Thailand, 1974". Master of Science in Economics, Thammasat University, Thailand. May.

10. Sang Ha No. 1976. "Mechanical and Operational Factors Affecting the Efficiency of Rice Whitening Machines". Department of Agricultural Engineering Graduate School, Seoul National University. May.

11. Jamaluddin, H.H. 1976. "Industrial Diagnosis of Some Agricultural Machinery Manufacturers in the Philippines: A Systems Approach". College of Engineering, University of the Philippines, Diliman, Quezon City.

12. Piputsitee, Chucheep. 1976. "An Economic Analysis of Manufacturing and Distribution Activities in the Farm Machinery Industry of the Philippines". Master of Arts in Economics, University of the Philippines, Diliman, Quezon City. June.

13. Kim, Kyeok Uk. 1977. "An Analytical Method for Kinematic Analysis of the Planting Mechanism of a Rice Transplanter". Department of Agricultural Engineering, Seoul National University, Seoul, Korea. October.

14. Habito, Cielito F. 1977. "The Choice of Techniques in Rice Harvesting Systems in the Philippines: A Microeconomic Analysis". Master of Economics, University of New England, Armidale, N.S.W. December.

15. Resurreccion, A. N. 1978. "Design of a Metering Device for Rootzone Granular Chemical Applicators". Master of Science in Agricultural Engineering, University of the Philippines, Los Baños, Laguna. October.

16. Lee, Kyou Seung. 1979. "An Evaluation of Water Use Efficiency and Energy Requirements for Wetland Tillage". Department of Agricultural Engineering, Seoul National University, Seoul, Korea. April.

VII. SEMIANNUAL PROGRESS REPORTS

In addition to materials prepared for meetings and publications, the department submits a regular semiannual progress report describing the status of individual research and development projects conducted under a joint IRRI-AID contract. These reports are listed below:

A. Research and Development

Semiannual	Progress	Report	No.	1	by L. Johnson
"	"	"	"	2	" " "
"	"	"	"	3	" " " and S. Johnson
"	"	"	"	4	" " " " " "
"	"	"	"	5	" A. U. Khan " " "
"	"	"	"	6	" " " " " "
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"	"	"	"	12	" " " " "
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"	"	"	"	17	" F. Nichols, B. Duff, J. Campbell
"	"	"	"	18	" " " " and C. Lee
"	"	"	"	19	" A.U. Khan, B. Duff, C. Lee
"	"	"	"	20	" " " " " and D. Kuether
"	"	"	"	21	" A. U. Khan, B. Duff, D. Kuether and J. McMennamy
"	"	"	"	22	
"	"	"	"	23	
"	"	"	"	24	
"	"	"	"	25	
"	"	"	"	26	
"	"	"	"	27	

B. Workshop Proceedings

1. International Rice Research Institute. 1978. Proceedings of the International Agricultural Machinery Workshop. Los Baños, Philippines.

C. Industrial Farm and Technology Transfer

1. Agricultural Engineering. 1977. Industrial Extension of Small Scale Agricultural Equipment Developed at IRRI. Progress Report for Contract No. AID/ta-C-1208. June 30, 1975 - November 30, 1976.

VIII. RELATED PAPERS FROM OTHER IRRI PROGRAMS

A. Cropping Systems

1. Banta, G. R. 1973. "Comparison of Power Sources in Multiple Cropping". Saturday Seminar Paper, August 11.

2. Banta, G. R. 1973. "Economics of Irrigated Cropping Patterns". Saturday Seminar Paper, September 1.

3. Banta, G. R. "A Philisophy of Surveying Cropping Systems".

4. Banta, G. R. "Mechanization, Labor and Time in Multiple Cropping".

B. Economics

1. T. Anden and R. W. Herdt. 1974. "What Technology are Farmers Using and Why". Paper presented at the International Rice Research Conference, IRRI, April 22-25. (mimeo) 35 pp. Paper 74-3.

2. F. Bautista and T. H. Wickham. 1974. "The Tractor and the Carabao: A Socio-Economic Study of Choice of Power Source for Land Preparation in Nueva Ecija". Paper presented at the IRRI Saturday Seminar, July 27. (mimeo) 33 pp. Paper 74-13.

3. S.K. De Datta and R. Barker. 1975. "Economic Evaluation of Modern Weed Control Techniques in Rice". Paper presented at the Symposium on "Integrated Control of Weeds" at the Fifth Asian-Pacific Weed Science Conference, Tokyo, Japan, October 5-11. (mimeo) 23 pp. Paper 75-13.

4. Barker, R. and V. Cordova. 1976. "Labor Utilization in Rice Production". Paper presented at the Conference on the Economic Consequences of New Rice Technology, IRRI, Los Baños, Laguna, December 13-16.

5. Herdt, R. W. 1976. "Costs and Returns for Rice Production in Luzon, Philippines". Presented at the Conference on Economic Consequences of New Rice Technology, IRRI, Los Baños, Laguna, December 13-16.

6. S.K. De Datta, R. Morris and R. Barker. ITPS. "Rainfed Land Preparation". 1978. April Conf.

C. Irrigation and Water Management

1. Valera, A. and T. H. Wickham. 1974. "Land Preparation in Lowland Rice: Its Speed in Relation to Rate of Water Supply". Paper presented at the Philippine Society of Agricultural Engineers' Annual Convention, Manila, April 18-19. (mimeo) 22 pp.

2. Giron, O., A. Valera and T. H. Wickham. 1974. "New Instrumentation for Irrigation Flow Measurement". Paper presented at a symposium on "The Role of Irrigation and Drainage in Enhancing the National Goals of Crop Production" sponsored by the Philippine National Committee of the International Commission on Irrigation and Drainage, Manila, July 11-12. (mimeo) 17 pp.

3. Valera, A., O. Giron and T. H. Wickham. 1975. "Land Preparation: Its Speed in Relation to Rate of Water Supply and New Instrumentation for Irrigation Flow Measurements", paper presented at the IRRI Saturday Seminar, February 15. (mimeo) 30 pp.

4. Giron, O. and T. Wickham. 1976. "New Techniques for Measuring Seepage and Percolation and Water Use Efficiencies in Irrigated Areas". Paper presented at the IRRI Saturday Seminar, July 10.

5. Singh, Pal. 1976. "Improving the Productivity of Exposed Subsoils in Talavera, Nueva Ecija". September 4. 25 pp.

6. Water Management. 1976. Bibliography on Socio-Economic Aspects of Asian Irrigation, IRRI-ADC.

IX. MISCELLANEOUS

1. Johnson, L. 1966. "Mathematics, Engineering and Agriculture", Thursday Seminar Paper, February 17.

2. Kiamco, L. and J. McMennamy. 1978. "Reflection on the Energy Requirements of a Small Scale Farmer", Saturday Seminar Paper, June 10.

3. Kuether, D. O. and B. Duff. 1979. "Energy Requirements for Alternative Small Farm Rice Production Systems in the Tropics". Society of Automotive Engineers, Milwaukee, Sept. 10-13. (forthcoming).

6.27.79

S-agric + RD

Mr. Alfredo Sfeir-Younis, AGREP

September 18, 1979

Graham Donaldson, Chief, AGR

Terms of Reference - Attendance at COFI Rome - October 1979

1. On or about October 7, 1979 you should depart for Rome to attend the COFI Meetings as Bank representative.

2. From Wednesday, October 10 I will join you for talks with the Fisheries Department, FAO Cooperation Program and other units in FAO.

3. On your return about October 14, 1979 you will prepare a back-to-office report.

cc and cleared: Mr. D. Pickering (AGR)

cc: Mr. M. Yudelman (AGR)
Ms. M. McDonald, (IPA)

S-AgR.D.

Alfredo Sfeir-Younis, AGREP

September 12, 1979

Graham Donaldson, Chief, AGREP

Terms of Reference - East-West Center Conference on Resource Management and Benefit-Cost Analysis

1. On or about September 16 you will go on a mission to the East-West Center in Honolulu, Hawaii. Your main objectives on this mission will be to participate in the Conference on Resource Management and Benefit-Cost Analysis.

2. You will return to Washington on or about September 22, 1979. On your return you will prepare a back-to-office report.

cc: D. Pickering (AGR)

ASfeir-Younis:vau

S. Agriculture

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

September 14, 1979

Mr. Sol Linowitz
Chairman, Presidential Commission
on World Hunger
1 Farragut Square South
Washington, D. C. 20006

Dear Mr. Linowitz:

I have looked through the Commission's August 27 draft report and the September 7 Summary of Comments on it. I realize it is difficult to produce a good report on this subject and I think the Commission has come a long way. But I feel an outstanding report is needed if the Commission is to jolt the American people--both the public and the professional food community--out of the mental traps that surround our thinking about development in general and hunger and food in particular. I don't think the draft report does this yet, but I think it can.

I hope the attached suggestions are helpful. In essence they concern five issues:

--It would be more effective if the report could be restructured so that "hunger" is the clear focus throughout, building logically from immediate hunger issues to long-term solutions and then to complementary actions;

--To make it clear why the U.S. has such a fundamental role to play, the serious backing away from development and food by the U.S. in the past decade must be made clear;

--Many of the so-called constraints to solving the hunger problem (pessimism vs. optimism) are in large part the result of policy changes in the U.S. and a few other developed countries in the past decade and are not constraints imposed by land, climate or environment. What they reflect, more than anything else, is the absence of short-run world food security, a weak element in the report;

--To solve the hunger problem does not require massive alterations in U.S. policies--especially defense. It requires marginal but well-directed and adequate changes;

--Very little that is truly relevant to the food and hunger issues has anything to do with "self-reliance" or "optimism" and "pessimism."

I hope these comments are constructive and may in some small measure compensate for my inability to be more helpful to the Commission earlier.

Sincerely,

Harry Walters

Harry E. Walters
Adviser on Agriculture
and Food Strategies

Attachment
cc: Mr. Daniel E. Shaughnessy
Ms. Janet Lowenthal

S - Agriculture

Mr. Ted Davis

September 11, 1979

Guido Deboeck

Analysis of Agriculture and Rural Development Project Components FY75 - 79

n/att

Attached are the preliminary results from an analysis of investment components in agriculture and rural development projects approved by the Bank since FY75. This analysis was undertaken on request of Mr. L. Christoffersen, who expressed an interest in information on the design and composition of multi-component projects.

I would appreciate to receive your comments and suggestions on the attached paper.

Enclosure

GDeboeck/dad

Non-Regional file

S-Agric + R.D.

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

September 11, 1979

Mr. Sander Levin
Assistant Administrator
Bureau for Development Support
Agency for International Development
US Department of State
Washington, D.C. 20523

Dear Mr. Levin:

This letter is in response to your letter of August 22, 1979, to Mr. William Clark, in which permission is requested to review selected Bank appraisal, completion and audit reports on irrigation projects, and to summarize data from them. The review would be part of a world-wide survey and inventory of irrigation water management technologies which your agency is undertaking. You rightly assumed that the Bank, too, is very much interested in the improvement of on-farm water management practices in developing countries. We shall be pleased, therefore, to assist in this effort by providing information for the review and inventory, and are looking forward to receiving copies of any reports that are published as a result of the work.

While the Bank reports that you requested are all available to AID through the Office of the US Executive Director for the Bank, Mr. Edward R. Fried, they are confidential and cannot be cited as sources in any published AID document. However, we do not believe that this restriction would unduly preclude their utility for your study. To avoid misunderstandings on this point and to expedite access to information on the projects in which there may be an interest for the purposes of this study, perhaps it would be well to schedule an initial meeting among AID officials and the researchers, appropriate Bank staff and the Office of the US Executive Director. Mr. Donald C. Pickering, Assistant Director, Agriculture and Rural Development Department, Central Projects Staff (telephone no. 477-2591), should be contacted in this regard.

Project reports in the Bank may be helpful in identifying projects which perhaps deserve more detailed study in the field. However, it would be up to AID entirely to make arrangements for field reviews and to obtain the project country's consent for the citing or use of any information so obtained. We do not think it would be appropriate for the Bank to be involved in these aspects of the AID study. We would, however, be happy to discuss such information, and any conclusions drawn therefrom, with your staff and researchers.

We look forward to being of assistance to you in this endeavor.

Sincerely yours,

Herman G. van der Tak
Director, Projects Staff

FLHotes:rm

cc: Messrs. W. Clark (VPE); Weiner (DGO); Yudelman/Pickering (AGRDR/CPS)

S-envir + health
S-agriculture + RD

September 7, 1979

Professor David Pimentel
Department of Entonology
Cornell University
Ithaca, New York 14853

Dear Dr. Pimentel:

The preliminary incomplete draft guidelines we would like you to review are enclosed. The audience, mainly internal Bank project design agronomists, are identified in the introduction.

These guidelines have two main objectives: to improve the mix of projects sponsored by the Bank and to improve the design of each type of projects - both from an environmental (sensu lato) point of view. The social, political, economic, etc., views will be added later. My interest in this exercise is to help restore agriculture to a renewable or sustainable activity and to slow down to conversion of intact tropical wet forests, etc. into cropland.

Would you please read through the whole manuscript and mark it up all through from an environmental/biological/ecological/energy point of view? Agricultural input will be added later. Please note any factual errors, and most importantly, ommissions. Please add phrases, lines or paragraphs whenever you feel they would improve the whole. In particular would you please finish off guidelines No. 25 on Energy? If you feel some more guidelines on topics not yet in the table of contents, please call me whenever you can.

Please don't be put off by the gradualistic approach. I want to start small, but on really firm ground ecologically. Implementation and "selling" the guidelines to the Bank project designers is a separate exercise. These guidelines are designed to show general environmental preferences. Once these become recognized, the specifics of individual projects can be focussed on at a later date. At this stage, I want to avoid overquantification and over-specificity.

Please call at any time with any queries. Rough drafts of your input all the way through are all that is needed right now. If you have suggestions of major topics to be addressed or people who could improve the document, please let me know.

With many thanks for your work.

Sincerely,

R. J. A. Goodland
Office of Environmental

S-agric + RD

Mr. Rainer B. Steckhan

September 6, 1979

Ted J. Davis, AGROR

World Conference on Agrarian Reform and Rural Development

In reply to your note to Mr. Yudelman of August 22, I am enclosing a copy of my Back to Office Report and also a copy of Mr. Husain's speech to the World Conference.

I noted with interest the memo from Mr. Cherniavsky to John Merriam about press reactions to the World Conference. Unfortunately the "Counter Conference" made more press than the Conference itself. The Lappe and Payer types are making careers of attacking the Bank projects. They are not reasonable people and propose no solutions; using instead glib cliches concerning participation and involvement of the poor. These writers are so irresponsible that their facts are obviously not researched. For example, Lappe has alleged that the Bank concentrates on cash crops and livestock to the detriment of the poor. In fact at least 70% of the Bank's agricultural projects produce food crops and even the livestock projects are heavily oriented toward milk production.

I am, of course, working closely with IPA but I have my doubts about reacting to these kinds of attacks.

Attachments

TJD/cc

cc: M. Yudelman, AGR

S-envir + health
S-agriculture + RD

Your page 2, para. 3: I, personally and with difficulty, am gradually improving minor environmental aspects of Bank work, especially when I get ecological support from specialists like you. These minuscule achievements will grow to the extent the Bank becomes reliable. Once the point of view is accepted, the [illegible] out for each case as it arises. The Bank may be in a position to improve economic, etc., attitudes, as you put it, I personally am not. The Bank is [illegible] in-house. Re your Ecuador example - we are indeed

September 6, 1979

Dr. Daniel H. Janzen
Department of Biology
University of Pennsylvania
Philadelphia, Pa. 19104

[illegible] don't share your views on effectiveness and [illegible] out the ecological, it will give me ammunition to improve our work. I hope you will finish going through it.

Dear Dan:

Thank you for your letter of 29 August and for the comments on the first three guidelines.

I didn't explain clearly that these guidelines are one attempt or approach (among many) to achieve the goals we share or at least to move events in a slightly better direction.

First, in order to slow down the conversion of all remaining natural ecosystems into crops, these guidelines will help improve production on existing sites, hence reduce the pressure on intact areas. Second, these guidelines will eventually change the mix of projects sponsored by the Bank, i.e., more forestry, reforestation, less cattle pastures; more protected tracts zoned commensurate with increase in cropland; more tree crops or perennals and less annuals and so on.

I meant to ask you to review the MS from a biological/ecological/environmental point of view. Later, it will no doubt get sociological, political and economic input you feel so strongly should be added.

Possibly, should I have explained what little I have picked up of Bank beaurocracy, most of your statements would have been satisfied.

Ecologists think they can see some stop signs that are not perceived by others (your letter end of page 1, top of page 2). These guidelines point some out. What governments decide to do is their sovreign right (as they say). This by no means says that the Bank will assist them in going in a direction we feel inadvisable. Yes, we will financially, etc., assist improving oil palm plantations. No, we will not assist a government turning all forest into oil palm. A farmer may continue to 'mine' his soil; the Bank should not promote it on the projects we are involved in.

Your page 2, para. 2: The MS is aimed mainly at Bank and other project designers. Yes, they do say right now that they are doing it the best way. Results are accumulating that they are wrong. They are indeed getting sensitized. The MS is not too vague to show better directions. You over or underestimate the project designers.

Your page 2, para. 3: I, personally and with difficulty, am gradually improving minor environmental aspects of Bank work, especially when I get ecological support from specialists like you. These miniscule achievements will grow to the extent the MS becomes environmentally reliable. Once the point of view is accepted, the specifics can be worked out for each case as it arises. The Bank may be in a position to improve economic, etc., attitudes, as you put it, I personally am not. The MS is designed primarily for in-house. Re your Ecuador example - we are indeed getting these.

Page 2, para. 5: I don't share your views on effectiveness and operationality. If you check out the ecological, it will give me ammunition to improve our work. I hope you will finish going through it.

Attachment

Sincerely,

RG

R. Goodland
Office of Environmental
and Health Affairs

cc: Dr. J. A. Lee, OEHA

RG:OMc

S-agric + RD

September 5, 1979

Mr. Gopal Chandra Mandal
Field Officer
United Bank of India
Sheakhala Branch
P.O. Sheakhala, Dist. Hooghly
West Bengal, INDIA

Dear Mr. Mandal:

Re: Your letter of August 15, 1979, concerning the FAO World Conference on Agrarian Reform and Rural Development

Mr. McNamara has asked me to reply to your letter, particularly since I was a representative of the World Bank at the Conference. Mr. McNamara was unable to attend but Mr. Shahid Husain led the World Bank's delegation and presented a speech on behalf of the Bank on the opening day of the Conference. I am happy to enclose a copy of this speech for you.

The final report of the World Conference has not yet been received by us here at the World Bank. Perhaps you should write directly to FAO and ask them for the "Declaration of Principles and Programme of Action" adopted by the World Conference. I would suggest you write to:

The Secretariat
World Conference on Agrarian
Reform and Rural Development
Via del Terme de Caracalla
0010 Rome, Italy

We very much appreciate your deep concern for the poor and your efforts to bring the benefits of development to them. I wish you success in your research project, particularly in identifying obstacles and solutions to bringing the poor fully into the development effort.

Very sincerely yours,

Ted J. Davis, Chief
Rural Operations Review and Support Unit

Encl.

cc: B. Moore

S- envir & health
✓ S-agriculture & RD

Dr. J. A. Lee, Environmental & Health Affairs

September 5, 1979

R. Goodland, Environmental & Health Affairs

RG

Tropical Forest Cattle Pastures

1/ The joint CPS/AGR/OEHA seminar on the above topic was presented by Ms. S. Hecht on August 24 with Dr. Paulo Noguiero Neto, Brazil's Special Secretary of the Environment participating, and about fifty people attending. The attached document was handed out as background.

2. The seminar focussed on technical - edaphic, pedologic, chemical - data showing degradation of the pastures over the course of ten to fifteen years or so, in two study regions around Paragominas (Para), and Barra do Garcas (Mato Grosso), involving about 80 samples in each age class. Eighty-five of the ranches were out of business by 1977 as the environment deteriorated.

3. The details will be published later. Suffice to say Dr. Paulo Noguiero Neto volunteered immediately after the presentation that the situation portrayed was very accurate; that SUDAM was halting fiscal incentives to cattle projects; and that an Amazonian land-use code being formulated will probably prohibit ranching in Amazonia. He added that this federal code is expected to mandate that about 90% of Amazonia should remain primarily in treed land-use.

4. Dr. Pedro Sanchez supported the presentation in saying that Ms. Hecht had demonstrated that the prevailing activities are wrong, although some of the technical details were more valid than others. While OEHA and others have suspected the conclusions intuitively for some time, this is the first study documenting the reasons for failure in detail.

5. There is a clear need for information on development alternatives: what economic, particularly agricultural, projects are rational in such environments. You may want to collect constructive proposals and have them presented in a complementary seminar or paper. In view of similar major Bank activity in Indonesia, in Colombian Amazonia and in Western Amazonia of Brazil and elsewhere, such a positive approach would be prudent. Opening a dialog as early as possible with Bank staff engaged in the design of similar projects would, over the longer-term, improve our lending program and reduce environmental risks to our borrowers.

Attachment

cc: Mr. J. C. Collins, AGR
Mr. D. Pickering, AGR
Ms. C. Watson, OEHA

RG:OMc

Yellow

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Mr. Graham Donaldson, Chief, AGREP

DATE: August 31, 1979

G. Temple, AGREP

5-Agric & RD

Labor Constraints in Agricultural Projects

1. Apparently some project analysts forecast incremental requirements for hired labor by comparing "with project" labor requirements with the labor resources of an average family. Such comparisons may produce inaccurate estimates and, in any event, represent an inappropriate method of analyzing labor constraints in agricultural projects

2. Most analysts examine family labor requirements by comparing projected total family labor use with available family labor resources. Included in this concept of labor demand is not just the labor that would be required by activities to be financed under the project, but also the family labor allocated to other on-farm activities and to off-farm employment.1/ The resulting estimates of incremental family labor requirements are then added up across the number of farmers in the project to arrive at an estimate of incremental project labor requirements.

3. Project labor constraints are analyzed by comparing incremental labor requirements estimated for the project with labor availability in the project area. This final comparison takes into account the determinants of labor supply in the project area -- local seasonal labor participation rates and seasonal inmigration and outmigration rates. If the area is able to draw only on the local population for its labor requirements and project labor requirements are forecast to exceed local labor availabilities during harvest or land preparation, the project is redesigned. Even when seasonal and permanent in-migration is sufficient to meet peak labor requirements, great care is exercised to determine that similar peak demands for labor do not occur simultaneously in the areas of expected out-migration.

4. Current established techniques for estimating labor requirements produce reliable results, provided incremental requirements for family labor are based on analysis of how the family operates as a decision unit and estimates of incremental labor requirements for the project are based on analysis of the area's labor market. We review SARs in part to ensure that labor constraints are analyzed properly.

1/ Failure to include these non-project activities would result in unforeseen labor shortages during project implementation if farmers were unwilling to shift family labor away from non-project activities. This is frequently the case for small farmers for whom off-farm employment opportunities represent important sources of cash incomes.

cc: Messrs. Pickering, Hotes, Sutherland, Russell (AGR/CPS).

GTemple:oh

V S - agric & R.D.
S - envir & health

Mr. Clive Collins, CPS/AGR August 30, 1979

R. Goodland, Environmental & Health Affairs RG

Environmental Aspects of Agriculture Projects

1. Mr. Pickering's question at our Colombia: El Retorno, 28 August meeting was most heartfelt here: how can environmental aspects (if any) be raised during the early creative stage of the project cycle, rather than letting such input become counterproductive criticism? I would like your advice how this can be achieved. As an example of a course actually followed, here is the chronology of the main actions taken on El Retorno:

July 5, 1978	OEHA comments to Mr. Wallis on a possible Caqueta III; alerted to environmental aspects; sent Kirby's 1st paper.
December 27, 1978	Preparation mission report.
December 28, 1978	OEHA memo to Mr. Haasjes alerting re future projects and environment.
January 9, 1979	OEHA arranged project personnel to meet Dr. Tim Whitmore (Oxford University Forestry Professor), who was advising GOC on wet forest conservation and research; OEHA alerted project of environmental potential.
May 7, 1979	Decision memo (no decision meeting was held).
May 17, 1979	OEHA queries INCORA's monitoring; alerted project to Caqueta environmental problems (sent Kirby's 2nd paper).
May 23, 1979	OEHA's Tropical Deforestation memo to Messrs. Thomas, Haasjes, and Wallis.
June 13, 1979	OEHA memo to LCPA2 on deforestation.
July 27, 1979	Appraisal Report (yellow) sent to OEHA.
August 3, 1979	OEHA comments on Appraisal Report.
August 10, 1979	LCPA2/OEHA discussion; received Ortiz report for first time.
August 17, 1979	Invited LCPA2 to "Amerindians and Development" seminar.
August 21, 1979	OEHA comments re Ortiz and August 10 meeting.
August 24, 1979	Invited LCPA2 to "Tropical Deforestation" seminar.

cc: Dr. J. A. Lee, Ms. C. Watson, R. Overby, D. Pickering and F. Lethem

RG:OMc

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WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mrs. Helen Hughes, Director, EPD

DATE: August 30, 1979

FROM: Malcolm D. Bale, EPDCE, and Ernst Lutz, EPDIT

SUBJECT: Draft Staff Working Paper No. 359, Price Distortions in Agriculture . . . .

1. We have read carefully the memo from Mr. Waide reviewing our paper. We found some comments constructive in improving the paper and accordingly have made the following changes:

(a) the grammatical error in the title has been corrected. (It never ceases to amaze us how such blatant errors can be committed and can be read by so many before being detected - we thank Mr. Waide for this); and

(b) the second sentence of the introduction has been softened by the addition of the phrase "among other things."

2. We have not referred to Gil Brown's work but rather to Peterson's, since Peterson's is, like ours, a cross-country analysis whereas Brown's is country specific. We have referred to Gotsch and Brown, and to the book that T.W. Schultz edited in which Brown has a chapter. Personally, we were concerned that three pages of references were already rather long.

3. We do not find Table 4 and the text conclusion misleading. Nowhere do we claim that the study encompasses all commodities. Rather we wanted to put the commodities into a national perspective. There is ample precedent for this beginning with Basevi's study (AER 58 (1968): 840).

4. With respect to Mr. Berkoff's comments, we regard them as much less damaging to the integrity of the paper than does Mr. Waide, viz:

(a) the NPC's for Pakistan indeed come from the Gotsch and Brown study As stated in the paper (p.5) the coefficients are adjusted to allow for the overvalued exchange rate regime existing in many countries including Pakistan. The adjustment factors which were obtained from the respective country economists, are based on shadow exchange rates, and are widely used and accepted within the Bank;

(b) the estimates of supply and demand are taken from Rojko et al, as stated in the paper. This work is regarded in the profession as comprehensive and authoritative. In addition the method of estimating the elasticities is consistent across countries. In brief, the elasticities are the best available;

(c) Mr. Berkoff's concerns regarding the labor/output (L/O) coefficients mirror our own as expressed on page 9 and in footnote 6. L/O coefficients vary greatly from technique to technique and from region to region. Ours, taken from a broad range of sources, represent the current state of the arts. On the specific comment regarding rice and wheat coefficients, the average rice L/O coefficient is larger than the average wheat coefficient. The marginal rice coefficient is not larger than the marginal wheat coefficient for good reason. In Pakistan 98% of the rice area is irrigated so that variations between average and marginal L/O coefficients is not as great as for wheat where the marginal coefficient is based on dry-land farming. Under such culture the labor input is about the same but output is dramatically lower, hence the L/O coefficient is large; and

(d) we have checked the data that was questioned and have found a misplaced decimal point. We thank Mr. Berkoff for noticing this and we will rectify it. Other data is intact.

15. In summary, we feel strongly that the paper has significant policy implications and that the calculations add value to it by indicating the dimensions of the problem. It seems to us that there are two general approaches to research. One is to tread cautiously and to resist coming to a conclusion when a data or methodological weakness exists. The other is to accept the fact that perfection never exists, to be sure that one has the best data and information currently available, to be aware of its shortcomings, but to proceed anyway. This is the philosophy that we prefer. Further, we do not consider it necessary to spell out to a professional audience that the exercise is merely illustrative.

6. As you know, a condensed version of the manuscript is to be presented at the IAAE conference in Banff next week. We suggest that we finalize the paper after the Conference so that we may take account of further comments that may arise during the discussions.

cc: Messrs. Colaco (EPDIT), Singh (EPDCE)

MBale/sas

Mr. A. Schumacher, AGP

August 28, 1979

Dennis J. Parsons, Chief, ASPAB

Agri-Executive Seminars: Design of Rural Development Projects and Organization of Rural Development Projects

1. I have discussed Mr. Yudelman's memorandum of August 7 with three of the four members of this Division who attended the course at Harvard Business School in September 1978 and have incorporated their ideas here. As you would expect, their response to the course was good, with only minor reservations.

2. Our main comment on the proposed two courses is that it seems somewhat artificial to split design of agriculture and rural development projects from organization and management issues of these projects. Our experience indicates that organization cannot be isolated from design. Indeed, the difficulties we are now experiencing with the Rural Development Project in Bangladesh are largely attributable to the organization we attempted to impose in designing the project.

3. As to the list of cases proposed, we question the preponderance of cases from relatively well developed countries, as well as the inclusion of T and V Extension cases which are not truly rural development projects. If T and V cases are to be included, India might provide a better case than Turkey. We question whether too much emphasis is not being placed on PIDER cases; Mexico is rather developed, the case is quite complicated and the amount of case material has proved very bulky to deal with in past courses.

4. For additions, we would suggest inclusion of Bangladesh Rural Development (Cr. 631-BD).

5. I have several staff members in the Division who would be interested in attending courses of the sort described; Messrs. Thornley, Von Ruemker, and Loganathan are likely candidates and there may be others.

DWJeffries:raf

Non-Regional File

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. R. Goodland (PAS)

DATE August 28, 1979

S - Agric + R.D.

FROM: J.C. Collins (AGR/CPS)

SUBJECT: Controlling Desert Encroachment

Attached is an interesting report on work in progress in Tunisia to which my attention was drawn by Mr. H. Floyd (EMP). This seems to have the sort of encouraging results which both OHEA and AGR/CPS should be following up. If the Tunisians can come up with an appropriate approach to the application of grazing controls, it seems to have the making of a worth-while pilot project, under which we might also fund continued research.

Attachment

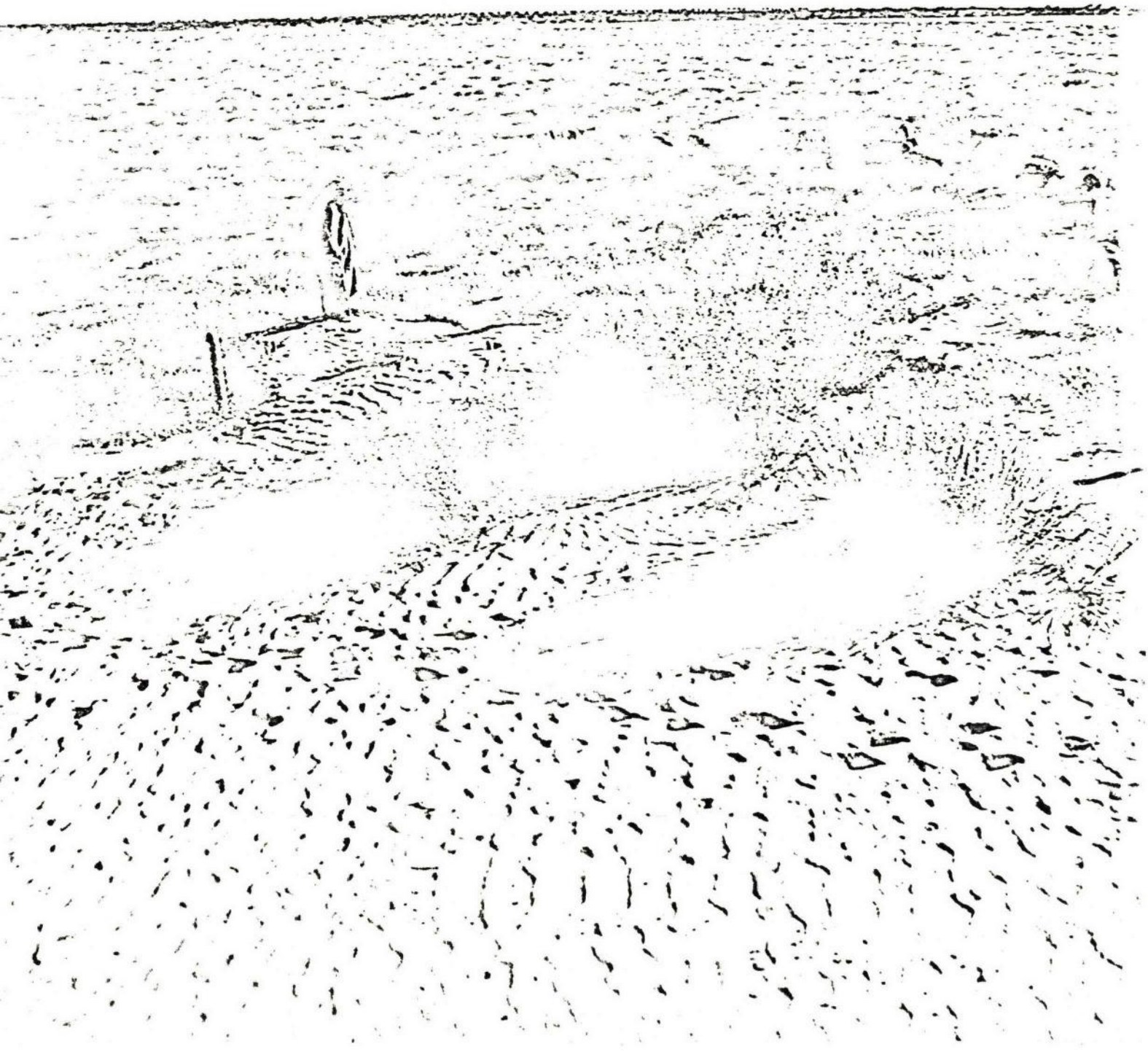
JCCollins:rm

cc: Messrs. Merghoub, Floyd (EMP); Ms. Watson (OHEA/PAS); Pickering (AGR/CPS).

FROM: SMITHSONIAN MAGAZINE AUG, 1979

By Dora Jane Hamblin

Experiment in Tunisia effects pause in spread of Sahara's expanding sands



A pilot project, part of a world study, restores desert and analyzes data which may make such areas livable

If the Creator ever decides to ask for the world back, he will certainly find that the property "needs work," as real estate advertisements put it. He may even find that it desperately requires "creative couple who enjoy renovating"—a worst-case situation.

Some global creative couples do exist. One is the combination of Utah State University ecologists and the Tunisian Ministry of Agriculture, their efforts coordinated by a remarkable Tunisian resident of Russian extraction and French citizenship named Georges Novikoff. They have spent seven years working on a renovation plan for a very dilapidated piece of world property, the Sahara desert fringe in North Africa.

The Tunisian PreSaharan Project, as their research effort is known, occupies only a small plot of this desert fringe, but it has greatly expanded our understanding of a desert ecosystem. An ecosystem is a complex of communities living within a distinctive type of terrain and vegetation and specific climatic conditions: in this case a population ranging from ants and vipers to sheep, goats, camels and humans, set in a sere, rolling landscape of encroaching sand dunes where temperatures can soar to 110 F at midday and mean annual rainfall is roughly four inches, a little more than twice as much as falls in Death Valley. The predominant vegetation is a scrubby plant called *Rhanterium suaveolens* which does not grow in the United States but which struggles against the odds in Tunisia to support grazing animals and hold back the dunes.

The research done here looks as unimposing as the arid land. There is none of the drama of irrigation projects and reclamation schemes that transforms desert into garden, as in Israel. Here instead are fenced fields, less than 350 acres in all, with small plots of scrawny barley, flocks of sheep and goats, a tiny white "field house" without water or electricity. But wind gauges turn, precipitation measuring pails stand on sturdy posts, a shiny device on which the local shrikes like to perch measures radiation from the blazing sun, and cement troughs catch blowing sands for measurement. Earnest scientists make complicated soil analyses. They thrust thermometers into ants' nests to measure differences in temperature at ground level and below. They stealthily pursue snails, beetles, snakes and lizards over and under the sparse vegetation, and chart the habits and numbers of birds that prey on them. They dig up indigenous plant specimens to measure root systems, and fence off "exclosures" in which to measure vegetation growth in undisturbed

Behind the project's fenceline, reclaimed land supports grazing of sheep and goats, while in the foreground rippled desert is spreading.

Photographs by Ralph Crane

Scientists, technicians and herdsmen make up staff, led by Georges Novikoff (dark glasses).

Sheep wearing collection bag is contributing data on energy flow.

areas. They follow grazing animals about with stopwatches, making "bite counts" to learn how much animals eat and what plants they prefer, and they hang canvas bags on the beasts so they can analyze feces to determine how much of the food energy is used, how much excreted.

In gathering all this mass of detail, compiling heaps and piles of charts and statistics, the researchers have two aims: total comprehension of the ecosystem and the development of techniques which will enable human beings to wrest a living from these marginal lands without destroying them.

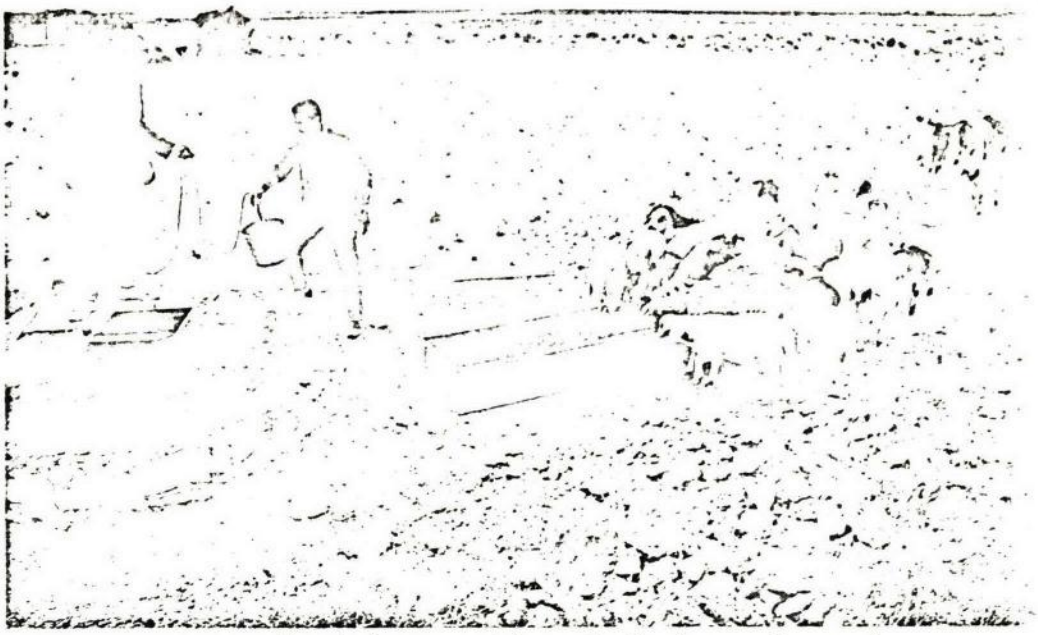
Deserts and marginal lands have been studied before, but the Tunisian project is the first primarily ecological study to include a detailed, meticulous look at the human beings who live within the ecosystem. Resident coordinator Novikoff advocated this unique approach because, as he says, "Deserts don't just encroach through some inscrutable will of their own. Encroachment is caused by the very force which is the ultimate victim—Man."

People have helped cause the spread of deserts by abusing the land in many ways—by overgrazing stock, by shortsighted farming methods, by yanking up shrubs to build huts and animal pens. Yet human beings must live, so two intensive projects in "human bioenergetics" and "effects of rural-urban migration" were set up to study 24 families—some 150 out of the 3,733 individuals who live in the lightly populated 375-square-mile area surrounding the ecosystem's acres. Everything was measured, from family size to amount of property, from hours spent in fuel gathering to those devoted to sowing, harvesting, herding and domestic chores. Annual income and expenditure were determined and broken down into source and category. Food consumption was tabulated and its "use" in the form of expended energy calculated. Chief researcher on this project was William H. Bedoian, who has worked as a doctoral candidate in Tunisia and at Penn State since 1973. Much work on energy expenditure and nutrition was done by his wife Kathryn, who had the advantage of being able to speak to the women, as did Concepción E. Lee, a graduate student at the University of Wisconsin, whose research traced the shift to a more socially differentiated, consumer-oriented society. Tunisian women in this part of the country do not speak to males outside their immediate family and are not photographed.

Little more than a generation ago, families such as these were nomads wandering across vast reaches of

The author, a free-lance writer who lives in Italy, reported the multinational excavation of the ruins of Carthage in SMITHSONIAN, *February 1979.*

Food intake of all creatures in the ecosystem, even spiders, is measured.



In a dash across catchment basin, sheep and goats vie for place at trough. Water comes from cistern (left).

Africa with their flocks, temporarily using the land and then moving on—which gave it a rest. But bureaucratic pressure (governments don't like nomads wandering willy-nilly across borders, untaxed and unregistered) and the amenities of a more sedentary life, such as schools, mosques and markets, have persuaded most of the former nomads to settle in permanent or semipermanent homes. Settlement promotes land degradation, because the herdsmen graze their flocks near where they live, year after year, and vegetation never has a chance to recover. Another consequence of a more sedentary life has been an increased birthrate, which puts further pressure on the land and drives farmers into less and less desirable territory. The Tunisian population growth rate is now 2.6 percent a year, surpassing even that of India and more than three times that of the United States.

Families living within the ecosystem, researchers found, are able to eke out a subsistence living only if there is a male member who can find work outside—in a nearby city, or abroad—and send money home. And their desperate efforts at home to coax subsistence from their acres create more desert. In all Tunisia thousands of acres a year are rendered infertile by wind and rain erosion—in a nation the size of Louisiana. And between one-third and one-half of the whole "*Rhanterium* zone," the grazing territory epitomized by the project's landscape, has been rendered useless in the past 50 years.

The problem, of course, is not restricted to Africa: 14 percent of the world's population, more than 600 million, live in dry lands dependent on a marginally productive environment. Worldwide, about 14 million acres of arable land disappear each year as deserts spread and populations grow. Even in the immensely fertile United States, roughly 15 percent of the land is designated "arid," requiring careful treatment lest its fragile fertility be destroyed forever.

To confront this spreading peril, the Desert Biome Project of the U.S. International Biological Program was launched in 1968 at Utah State University at a meeting of interested scientific investigators from a number of Western universities. The US/IBP has been a voluntary, nongovernmental organization sponsored and financed by the National Science Foundation. With headquarters in Logan, Utah, the Desert Biome has been directed by Dr. Frederick H. Wagner, who also conceived and directs the Tunisian project.

In the United States investigators applied themselves to study of the Great Basin Desert, the Mohave, the Sonoran and the Chihuahuan. Then they fanned out to other arid regions—Tunisia, Egypt, India—in hope of setting up similar studies for comparison and correlation. Tunisian authorities liked the idea, the

Researchers measure roots of *Rhanterium*, a vigorous plant which penetrates hardpan to survive dry years.

Smithsonian Institution offered financial backing, and Novikoff was chosen scientific coordinator at the site.

Work began in 1972 at a 123-acre plot called Dar ez Zaoui just a few miles inland from the humid coastal plain of the Mediterranean in southeastern Tunisia where it touches Libya. It was chosen partly because its latitude, mean annual temperature and precipitation are similar to that of a Mohave desert site not far from Las Vegas, Nevada, where US/IBP scientists had already accumulated a lot of data.

This made sense, but there was also an irony to the choice. For here in the encroaching desert, where several thousand people can now barely survive on a few hundred square miles of land, are the remains of great cities and granaries. Under the sands lie the relics of millennia of human occupation by Romans, Byzantines and Arabs, among others. In Médenine, the town nearest the project, are the remains of fortified *ghorfas*, odd peaked honeycomb cell houses made of clay and rubble but often six stories high. Less than a century ago there were still 6,000 of them, in which Berber farmer-herdsmen stored fodder, surpluses of grain and provisions against marauders. Roman mosaics in the area depict animal hunts in forests that flourished 2,000 years ago, and less than 100 miles north stands an amphitheater which received a steady source of lions from its surrounding territory in the days when much of present Tunisia served as a major part of Rome's principal breadbasket.

When the Dar ez Zaoui site was selected and fenced, it housed on its meager acres two active sand dunes with no vegetation whatever, 80 percent of their surface covered with the ripple marks that indicate moving sands. Two slightly smaller areas within the research area had not yet been invaded by dunes but showed 40-60 percent ripple marks. Another area showed surface crusting, and a final one, rather small, had both mixed soil and vegetation. This dreary property was leased from its owners, who moved themselves and their flocks to another site nearby, and work began. Tunisian technicians set up the first rudimentary measuring devices and the first wave of scientists moved in, many of them young doctoral candidates from the United States and Australia, some postdoctoral scholars intrigued both by the project and the opportunity to work in exotic Tunisia.

They equipped a four-laboratory office ("with lots of ice" Novikoff recalls) in the nearest "big town," Gabès, population 28,000, set up delicate instruments with which to measure the weights of ants and beetles, the respiration rates of all insects and animals within the ecosystem and the chemical content of soils.

"It seems orderly now, but in the beginning it was chaos," admits Novikoff. "We didn't know anything *scientifically*, we only knew from observation and intuition. Almost immediately we divided the total problem into specific areas of study and then found scientists to come and study them. It requires a certain kind of dedication, a special kind of person."

Special people turned up. Dr. Robert J. Muir of the University of New England in Armidale, New South Wales, Australia, moved to primitive quarters near the site with his wife and an infant. He spoke neither Arabic nor French, but he and his family stuck it out for four seasons, studying the nutrition of invertebrates, oxygen consumption of insects, microclimates and the temporal activity patterns of animals. They also learned French and a little Arabic.

There was John Skujins from Latvia, with a PhD

Foraging desert ants are counted as part of study of their range, food they collect, numbers in nests.

Cajoling landlords who want to raise the ecosystem's rent, Novikoff explains grant funds are limited.

from the University of California and now at Utah State, who examined the soil microbiology and biochemistry. And there were Utah State graduate students D. Coleman Crocker-Bedford and Kara-Lynn Crocker-Bedford who, despite the sound of their names, were born in Seattle and St. Paul, respectively, and who spent months making detailed livestock studies on flock size, composition, breeding rate, growth and dietary preferences, patiently comparing methods and results of the project's controlled experimental flocks with those of the neighboring farmers.

Gradually chaos turned into order and the pattern of the ecosystem began to emerge—in those heaps of data it would eventually require a computer to comprehend. Biome researchers were soon learning how tampering with one part of the ecosystem—ants, for example—could throw some other part, or the whole thing, out of whack. Muir and Dr. Harold Heatwole, Professor of Zoology at the University of New England, studied hundreds of ant colonies, measuring populations and forage range (one column of foragers 66 yards long was spotted on an April day in 1978), and even the amount and nature of their food. The latter was done by gathering up the chaff neatly distributed in concentric circles outside nest entrances, then separating, identifying, weighing and tabulating it. Ants are among the world's most prodigious workers and many are seed eaters. Some can transport 18 times their own weight in food. In a high-rainfall year plants even in marginal zones produce more seeds than ants can eat. But in a dry year their tireless legions will scoop up every seed in sight, leaving very little to germinate and to produce the next year's crop.

It might be possible to exterminate the ants, but this could create a new problem: one of their favorite foods is the seed of a noxious weed, which might take over the territory if the ants didn't carry away the seeds. If this weed came to dominate the *Rhanterium suaveolens* and the annual *Plantago albicans*, which is a favorite sheep food, the animals would suffer.

Some beetles tend to control ant populations by eating them; others dine with equal pleasure upon succulent growing green things, as in fact do snails. The total impact of this minuscule munching has been measured at the project and declared a "substantial" contribution to the loss of vegetation.

As if all this weren't complicated enough, there is the grazing effect. Unrestricted grazing, a common practice in the *Rhanterium* zone, tends to drive away foraging ants. Whether ants are disturbed by the trampling flocks themselves, or whether the grazers eat vegetation before full seed production can occur, thus starving out the ants, has not yet been fully determined by the researchers.

Sheep and goats, particularly in mixed flocks as they are normally maintained here, crop short any bit of vegetation and their trampling so loosens the sandy soil that a whisper of wind will blow it first into ripples and eventually into dunes. The goat, which has long been cast as the chief villain in the desertification of many regions, including the Middle East, may not be any more destructive than the sheep. While the sheep graze plants close to the ground, the goat browses with its head held higher, eating shrubs and

taller vegetation. Excessive numbers of either animal grazing continuously in one area will damage the vegetation severely. Together, they can wreak havoc on the entire plant spectrum.

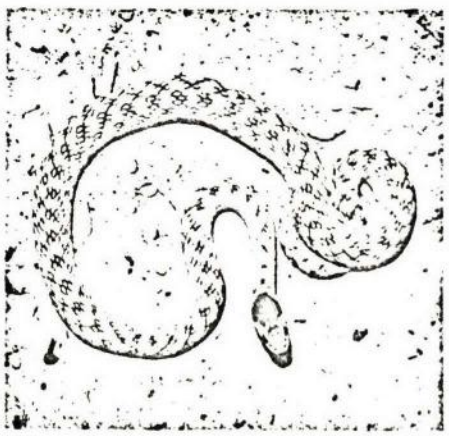
Both species will eat dried-up detritus. The litter-eater is in this respect as destructive as the plant-destroyer, because litter is a protective layer which inhibits wind erosion. On the experimental plots researchers have determined that one centimeter of litter will hold ten centimeters of loose sand and prevent it from blowing away. The lowly goat has one big advantage: it is the most valuable of arid land beasts, able to survive when sheep and cattle perish, thus providing a last-ditch supply of milk, meat and skins to an endangered family.

Having noted their somewhat dissimilar eating habits, the researchers have experimented with mixed flocks and flocks of sheep or goats alone. The results suggest that good range management would be to graze them on the same plots but in different cycles, a plan which would give each species' least-favored vegetation a chance to flourish.

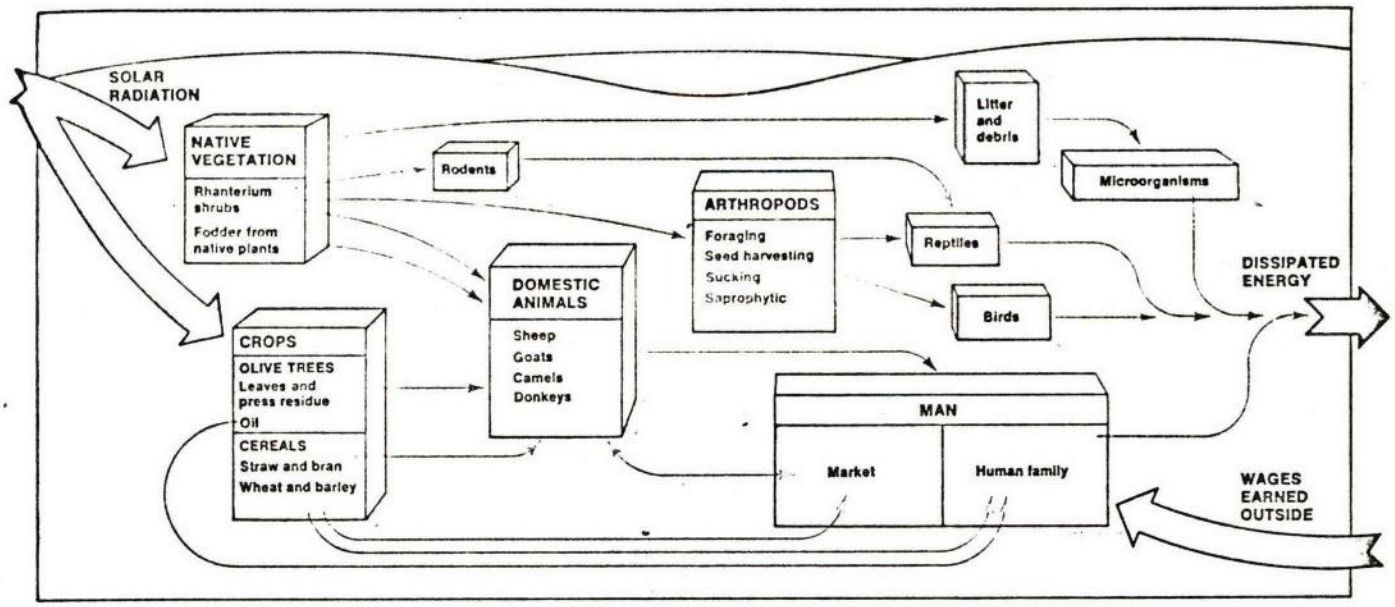
Controlling, restricting and rotating grazing involves slightly more work for the herdsmen but, demonstrably, it accomplishes the purpose of revegetation and turning back desert encroachment. On the project's fenced plots the flocks graze according to strict plan: only in winter, only in summer, only in autumn or, for temporary periods, not at all. Native plant growth has responded in spectacular fashion. Within two years with this treatment, the sand dunes inside the fences were stabilized and some vegetation had come back; within three years there were no more ripples anywhere.

Some water is now available by pipeline in this area of the *Rhanterium* zone, but it is restricted to the vital watering of animals during the arid months and is not available for irrigation. Rainfall thus remains the crucial source for forage and grain crops and the major control on the functioning of the ecosystem. But even rain itself, the boon of dry lands, can be a mixed blessing. In the growing year 1975-76 five times the normal amount of rain fell and forage crops grew rampant. But the leaves of two varieties developed a withering rust from the abundant moisture, and *Hedysarum spinosissimum*, which normally accounts for half the annual forage production, first formed thick mats several yards square, then dried out. The leaves and fruits which usually cure on the stalk and provide food for sheep and goats for a prolonged period, instead shattered and fell to the ground.

Rainfall has a complex relationship to a host of other processes as well. It determines, for example, how many men will migrate to cash-earning jobs, mostly manual, in nearby towns or nations. If autumn rains are skimpy, heralding a bad crop and inferior



Denizens of ecosystem include Athena's little owl, partly diurnal; nonvenomous desert brown snake, edging out vipers in control area; a heap of beetles seeking respite from noonday sun in hole



Energy from solar radiation flows through the *Rhanterium suaveolens* ecosystem in this simplified chart, reflecting the type of data fed to computers in attempt to model and predict ecosystem behavior. Solar energy flow diminishes when rain is scarce, is enhanced when it is adequate. In poor crop years, men leave for cities or abroad, reducing labor force but bringing their wages into ecosystem from outside.

grazing, the men leave. If rains are adequate they stay on the land to help. Good rains, well distributed, also greatly alter a family's plans for range management. Most tend to increase the size of their flocks to take advantage of the expected vegetation, and more importantly they make plans to sow grain crops, wheat and barley, on as many of their acres as they can put into cultivation.

These decisions again make waves throughout the ecosystem. The increase in flock numbers tends to cancel out the increase in vegetation, and the amount of grazing land is diminished when parts of it are turned to grain cultivation. Then there is the harvesting effect. Wheat is normally harvested with a sickle and the stubble left in the soil, but barley is yanked up, roots and all, by hand. This abrupt disturbance loosens the soil even more than does grazing and trampling, and exposes the land to instant wind erosion when the harvest ends.

Changing cultivation patterns compound the complexities. A study by William Bedoian showed that the traditional plow, a single-bladed instrument usually drawn by a camel, is being replaced by tractors pulling polydisk plows which can work 12 times as fast as a

in sand; *Messor* ant hauling *Plantago* fruit head many times its size and weight; lidless gecko, a night lizard which washes eye by sticking out tongue and licking; shrike, nemesis of resident lizards, beetles.

man with a draft animal. The temptations of quick gain induce most families to invest large amounts of their hard-earned cash to hire the tractors. Also, plowing by camel is slow going, and the planting season very short. If plowing is not done within about 15 days after the first good autumn rains, there may not be enough soil moisture to support sprouting and the initial establishment of seedlings. Over the long run, however, the polydisk disturbs much more of the soil than does the traditional plow, and encourages it to blow away, while at the same time it packs down the soil below the surface. After a few years of polydisk plowing the lighter sandy soil has blown away and the packed and striated underlayer has become as hard and impenetrable as cement.

One result of all these studies has been a clear demonstration that controlled grazing, proper harvesting and retention of litter can stop desertification and even begin to reverse it. With new devices developed in the United States, such as the "sweep" plow which aerates the soil but does not disturb its surface, and drill planters which can seed plots right through stubble and litter, it may be possible to further improve both crops and conservation.

The ultimate aim of the Biome Research Project is development of a computer model of entire desert ecosystems, a simulation which can be manipulated in theory to determine the effects of changes in land use, flock management, insect control, amounts of rainfall, and so on. Because the mass and complexity of the data are too great for human mind and manual data processing, the field research and results have been organized in such a way that large computers can analyze the material. Similar studies are being conducted in Iran by Dr. Brian Spooner of the University of Pennsylvania, in Kenya by Dr. Hugh Lamprey under support of the U.N. Environment Program, and in Egypt by Egyptian scientists with support from the U.S. Environmental Protection Agency.

On the basis of data gathered over a period of years, the computer can be fed fairly accurate information as to what happens when it is dry, when it is wet, when flocks graze freely or are controlled, the optimum number of beasts per grazing acre under varying conditions, and the amount of livestock, olives, grain or cash needed to sustain an average family. It can even be fed, upon the basis of present and accumulating data, certain predictive information. "It looks like a dry year," or "sheep and goat populations are rising rapidly." Then it can be asked, "What's going to happen as a result?"

If the data prove to be correct, the computer—once it is properly programmed—can "manipulate" the entire ecosystem in a matter of seconds and tell range managers and stockmen exactly what they should do to achieve the greatest possible gain with the least damage to the ecosystem itself.

But semiliterate farmers on a subsistence level have developed theories and practices of their own, rooted in long tradition. Few are interested in the concept of long-term goals. If this year they need the barley roots for their animals, they will pull them up no matter what any expert tells them. Their goal is simple and short-term: to stay alive.

Novikoff and other researchers see this as a difficulty: providing practical knowledge to the native population. "We already know enough about range management and subsistence economy to turn back the desert and help the people in better herd practices," says Novikoff. "The real problem is acceptance. We must convince them to accept different ways, different techniques."

There is striking evidence that the much-abused sandy soil of this area has a resilience far higher than similar arid lands in other parts of the world. Dr. Wagner describes as "one of the most remarkable findings" the fact that both flora and fauna recovered within a mere three-year period of control, and that the soil was completely stabilized.

The Tunisian government agrees that all this is desirable but has not found funds to carry on the project when the researchers leave. Unless support comes from other sources, or the Tunisian government finds men and money to disseminate the solid knowledge which has come from this meticulous research, then the whole brave effort will be obliterated like the Roman cities under the sands.

Shrike impaled this lizard on barbed wire for easy feeding, then devoured all but bony head.

OFFICIAL FILE COPY

S-agric & R.D.

Mr. Clifford M. Lewis, (AGREP)

August 27, 1979

Graham Donaldson, Chief, (AGREP)

Terms of Reference for World Food Council Meeting in Ottawa

On September 4 you will arrive in Ottawa to participate in the World Food Council's Fifth Ministerial Meeting. While attending the meeting you will monitor issues of interest to the Bank. You will endeavor to consult with other participants at the sessions to collect input for the Food Security and Grain Storage which has been requested by Mr. Stern, VPO, as well as the projected food policy note. Specifically you will discuss these items with representatives of the exporting countries, the secretariats of the WFC, IWC, WFP and other interested parties.

You will return to Washington by September 10th and prepare a back-to-office report.

GDonaddson:sf

WORLD BANK / INTERNATIONAL FINANCE CORPORATION Non-Regional File

OFFICE MEMORANDUM

TO: Mr. D.C. Pickering (AGR/CPS) DATE: August 20, 1979

FROM: J.C. Collins (AGR/CPS)

5 - Agric + RD

SUBJECT: Seminar on Amerindians and Development

1. I attended this very interesting seminar at which Prof. A.B. Colson and Dr. S. Davis discussed their experiences in Guiana and Brazil respectively. I think the main points brought out in the discussion were:

(a) Amerindians are more closely linked to their specific environments than most cultures and this--together with their highly developed, complex social relationships and customs--makes their resettlement difficult and their integration into "outside world" both slow and complicated.

(b) Their traditional existence by hunting and shifting cultivation requires an extensive area and, on the poor Amazon soils, pressures on their habitat can easily reduce it to a size which can no longer sustain the population.

(c) Groups which have had little outside contact are highly prone to disease and, when exposed by development, the provision of adequate medical facilities to handle epidemics is a high priority.

(d) Because of the complexity of the resettlement and integration problems, it is essential that attention is focussed on the issues as early as possible. To this end an early commitment on the part of Government agencies should be sought to address the needs of the indigenees, and careful studies made by knowledgable and experienced specialists (covering perhaps a quite wide range of specialisations) to determine the problems specific to the particular situation and to seek acceptable and appropriate solutions.

2. My only criticism of the speakers would be that they, not surprisingly, found it difficult in replying to questions to translate from their high humanitarian ideals to the hard and imperfect world of the Amazonian "frontier" in searching for practical solutions to the problems.

3. In view of a somewhat disappointing attendance you may wish to circulate the memorandum to LCP Agriculture Divisions, and possibly to others facing similar problems in other regions, in order to focus attention on what is becoming a worldwide concern.

JCCollins:rm

cc: Mr. Goodland, Ms. Watson (PAS)

S - AGRICI RURAL DEVELOP.

ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE

ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100 - ROME | Cables: FOODAGRI ROME | Telex: 61181 FOODAGRI | Telephone: 5797

Ref. UN 10/65 Gen. (Ext.) - 6th Meeting

AUG. 16 1979

Dear

Ad Hoc Meeting of the ACC Task Force on Rural Development
Australia Room (B-413), FAO, Rome, 27-28 September 1979

As approved by the ACC Organizational Committee, we are convening an ad hoc meeting of the Task Force on Rural Development to deal mainly with the follow up of the World Conference on Agrarian Reform and Rural Development.

I am now writing to inform you that the Task Force on Rural Development will meet from 27-28 September 1979 in Rome, with the enclosed provisional ... agenda. The meeting will be opened by Mr. E. Saouma, Director-General of FAO.

Working papers on agenda items (iii) to (vi) and the provisional timetable will be sent in due course.

I trust that the proposed dates will be satisfactory and that your Organization can be represented at senior level.

May I suggest that further correspondence with FAO be addressed to Mr. Rafael Moreno, Director, Human Resources, Institutions and Agrarian Reform Division.

Yours sincerely,

Declan J. Walton
Director
Office for Inter-Agency Affairs

Ad Hoc Meeting of the

ACC Task Force on Rural Development

27-28 September 1979

Australia Room (B-413), FAO, Rome

PROVISIONAL AGENDA

i) Statement by Mr. Edouard Saouma, Director-General, FAO.

ii) Adoption of the Agenda.

iii) Overall assessment of the World Conference on Agrarian Reform and Rural Development and its implications for the United Nations System in terms of follow-up action.

iv) Arrangements for monitoring and evaluation of rural development activities, as foreseen by WCARRD.

v) Country Focus on Rural Development Activities through Inter-Agency Cooperation: Review of the Terms of Reference for Evaluation Missions to Liberia, Lesotho, Somalia, Bolivia and Western Samoa, in the light of WCARRD's Programme of Action, and composition of the Evaluation Missions.

vi) Proposal for addition of more countries to the Inter-Agency for Rural Development Exercise - criteria for selection and proposed methods of approach for negotiations with countries.

vii) Any other business.

Ad Hoc Meeting of the ACC Task Force on Rural Development
Philippine Room (C277/281), FAO, Rome, 27-28 September 1979

Notification regarding the change of Room for the 6th Meeting has been sent to:

1. Mr. S. Quijano Caballero, UN, Geneva
2. Mr. Diego Cordovez, UN, New York
3. Mr. S. Ahmed, WFC, Rome
4. Mr. P. Berthoud, UNCTAD, Geneva
5. Mr. R. Olembo, UNEP, Nairobi
6. Mr. E.J.R. Heyward, UNICEF, New York
7. Mr. P. Bourgois, UNDP, New York
8. Mr. O. Volfing, UNHCR, Geneva
9. Mr. J.S. Mongia, WFP, Rome
10. Dr. O.W. Christensen, WHO, Geneva
11. Mrs. Shirley Boskey, IBRD, Washington
12. Mr. A.B. MacLennan, ITU, Geneva
13. Dr. D. Nicol, UNITAR, New York
14. Mr. J. Lemoine, ILO, Geneva
15. Mr. Abbas Ordoobadi, IFAD, Rome
16. Mr. John B.P. Maramis, ESCAP, Bangkok
17. Mr. A. Adedeji, ECA, Addis Ababa
18. Mr. E.V. Iglesias, ECLA, Santiago
19. Mr. M. Said Al-Attar, ECWA, Beirut
20. Mr. J. Stanovnik, ECE, Geneva
21. Mr. A. Thavarajah, UNFPA, New York
22. Mr. H. Nabulsi, UNV, Geneva
23. Mr. P. Koenz, UNIDO, Vienna
24. Mr. D. Najman, Unesco, Paris
25. Mr. R.F. De Viana, UNCTAD-GATT, Geneva

Information Copies sent to:

1. Mr. Peter Dunkel, ILO, Geneva
2. Mr. J.R. Mathiason, UN, New York
3. Mr. T.S. Zoupanos, UN, Geneva
4. Mr. P.B. Krishnaswamy, ESCAP, Bangkok
5. Mr. Salah M. Yacoub, ECWA, Beirut
6. Mr. W. Pierce, ITU, Geneva
7. Mr. R. Plantier, ECE, Geneva
8. Mr. A.E. Calcagno, UNCTAD, Geneva
9. Mr. G. Havord, UNDP, New York
10. Dr. A. Muyeed, Unesco, Paris
11. Mr. W. Koisser, UNHCR, Geneva
12. Mr. N. Santos, UNICEF, New York
13. Mr. S. Nanjundan, UNIDO, Vienna
14. Mr. S. Nyambi, UNV, Geneva
15. Mr. P.I. Markov, WFC, Rome
16. Mr. J. Moscarella, WFP, Rome
17. Dr. A. El Bindari Hammad, WHO, Geneva
18. Mr. T.J. Davis, World Bank, Washington
19. Mr. C.H. Weitz, FAO Liaison Office with UN, New York
20. Mr. S. Akbil, FAO Liaison Office with UN, Geneva

cc: Yriart, DD
Bommer, AG
Flores Rodas, FO
Lucas, FI
West, PBE
Sylla, GI
Skoufis, AF
Islam, ES
De Meredieu, ODG
Walton, IAA
Beringer, DDF
Bhattacharjee, ESP
Sabry, ESN
Narain, ESS
Fernando, DDC
Aribisala, AGS
Hartmans, AGO
Prats-Llaurado, FODO
Kojima, FIO
Ayazi, PBE
Moreno, ESH
Stevenson, ESHE
Marin, ESHH
Bruce, ESHI
Arulpragasam, ESHL
Herzog, ESHD
Zaman (chrono.)
ESH Registry (2)

ORGANISATION DES NATIONS UNIES POUR
L'ALIMENTATION ET L'AGRICULTURE

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Ref. UN 10/65 Gen.Ext. - 6th Meeting

SEP. - 6 1979

In your answer please quote

Dear

Ad Hoc Meeting of the ACC Task Force on Rural Development
Philippine Room (C277/281), FAO, Rome, 27-28 September 1979

Kindly refer to the letter of 16 August 1979 from Mr. D.J. Walton, Director, Office for Inter-Agency Affairs, inviting your Organization to be represented at the above-noted meeting, and to my letter of 28 August 1979 with which the working papers and Provisional Timetable were sent to you.

Please note that the meeting will now be held in the PHILIPPINE ROOM (C277/281) instead of the Australia Room (B-413).

Yours sincerely,

Rafael Moreno
Director
Human Resources, Institutions and Agrarian
Reform Division

√S. Agriculture
cc. S Health

See Below August 16, 1979

R. Goodland, Environmental & Health Affairs

Impact of Intensive Harvesting on Forest Nutrient Cycling RG

1. The 421 page book of proceedings of the above symposium is available from OEHA. The detailed table of contents is attached for your convenience.

2. As expected, most of the discussion focussed on boreal and septentrional forests in which the nutrient capital resides largely in soils rather than in the biomass. "Intensive harvesting", here defined as whole tree or whole above-ground removal, is worrying the participants because of the small fraction of nutrients lost from the mineral cycle.

3. Wherever equatorial forest data were invoked, the contrast was striking. Most of the nutrient capital in such forests, as we are learning, resides in the biomass rather than in the soils. For these reasons, whole tree removal in these ecosystems cannot approach sustained yield and is liable to disrupt the fragile balance.

Attachment

Messrs. J. Spears, AGR
K. Haasjes, LCP
R. Skillings, LC2
C. Keil, AGR
H. Wagner, LCP
R. Fishwick, WAP
J. C. Collings, AGR
R. Hewson, AEP
J. Greenfield, AEP
D. Pickering, AGR

cc: Dr. Lee, OEHA
Mr. Overby, OEHA

RG:OMc

TABLE OF CONTENTS

PERSONAL

August 15, 1979.

To
Mr. Robert S. Mcnamara,
President,
International Bank for Re-Construction
and Development (World-Bank),
H.O. 1818, H. Street, N.W.,
Washington, D.C. 20433,
U. S. A.

Respected Sir,

Re : F.A.O.'s Conference in Rome in the month of July 1979 Visa-vis your address in the conference.

Kindly refer to your address in the captioned conference where you declared that poor people are not benefitted out of the developmental schemes so cropped up in the different countries of the world. They are also not able to participate in the implementation of the developmental programs to make them a success. It is very noble of you that you have understood the real developmental drama where the poorest of the poors are silent spectators. It is really noble when a man like you having the topmost position in the banking era of the world understands the real situation - the deplorable conditions of the poor people of the world. It is my internal urge that I should convey my kindest regards on your historical comments and sympathy for the poor people of the world.

I hope the man like you of international repute will not hesitate to accept the respects and greetings conveyed to you from an unknown young junior most indian banker like me and send your blessings so that I can also dedicate myself for the cause of the poor people of the world extending the banking facilities to them with sympathy and love.

For your kind information I like to say that how I could understand the condition of the poor people of our locality. I organised "West Bengal 4H Club" in our locality in 1967 when I was a College student at O.U.A.T. Bhubaneswar, Orissa. I tried to make the 4H projects successful. I got also valuable advice from Prof. C.R Meeker (Extension Department), Dr. Wendel James Mckinsey (Economics Department) and other experts of Missouri University who at that time were advisors to our Orissa University of Agriculture and Techonology, Bhubaneswar. I also obtained guidance from Dr. K.D Sengupta, Ex-Director of Agriculture West Bengal now working as an advisor to your Bank and Dr. Walter T. Wilkening, Campus Co-ordinator, University of Missouri, Columbia, U.S.A. and other experts of India and other countries. But gradually I tried to understand that the poor people are not benefitted. They are also not interested for developmental works.

K.T.O.

After few years I joined the Govt. service as an Extension Agent. Here also same problems stand on the way for the implementation of the different schemes for the poor - the same problems which I faced to implement the 4H projects for the poor. After few years I joined the bank as an extention agent Cum-banker. I have been working here in the bank nearly five years but the problems here also are same :- the poorest of the poor are not benefitted much. Now I have decided to write a thesis for P.H.D. works on "The Role of Banks in Rural Development in West Bengal :- the post nationalised period" with a view to finding out the reasons why inspite of allout efforts poor people are not benefitted by different schemes of the banks and try to give ther solution, if possible, on my findings of the Research projects.

The copy of the resolution of the Rome Conference arranged by F.A.O. of U.N.O. will definitely help me to understand my problems. As such I would request you to kindly arrange sending a copy or gist of the resolution so taken in the Conference held in Rome if there is no bar.

Your valuable advice regarding the problem of the poor will also help me much to understand my problem.

With kindest regards.

Waiting for your kind reply.

Yours faithfully,

(GOPAL CHANDRA MANDAL)

From :-

Gopal Chandra Mandal
B.Sc. (Ag), M.A.(Sociology)
Field Officer,
United Bank of India,
Sheakhala Branch,
P.O. Sheakhala, Dist. Hooghly,
West Bengal, INDIA.

OFFICE MEMORANDUM

TO: Mr. Graham Donaldson, Chief, AGREP

DATE: August 13, 1979

FROM: Lloyd Harbert, AGREP

SUBJECT: American Agricultural Economics Association - Annual Meetings: Back-to-Office Report

1. On July 29, 1979, I arrived in Pullman, Washington, to deliver a paper on "Trade Adjustment Assistance and Labor Displacement in the U.S. Sugar Industry" at the annual meetings of the American Agricultural Economics Association. The paper was developed from research I did while I was a graduate student at Cornell University. The purpose of the paper was to show that the U.S. Title II trade adjustment assistance program, as it is currently designed, would not provide an acceptable substitute for protection of the U.S. sugar industry. The program was intended to provide a mechanism for assisting workers to find new jobs after they lose their old jobs to foreign imports. However, most of the work force employed in the sugar industry would not be eligible to receive assistance (supplemental unemployment compensation, retraining and relocation allowances, and other job services) under the current program. One criterion for eligibility is that a worker be employed for at least 26 weeks prior to displacement. Because a major portion of the workers employed in sugar production and processing are employed for less than six months of the year, this criterion would have to be removed before the Title II program would be considered an acceptable alternative to protection.

2. In addition to presenting the paper on Monday afternoon, I attended four other sessions: (i) Food Policies and Programs; (ii) Nutrition and Food Policies; (iii) Agricultural Trade Issues Among Pacific Ocean Countries; and (iv) Inflation and Prices. A program listing the other fifty-four sessions will be circulated around the Division. I have copies of some of the papers from the four sessions that I was able to attend.

3. The most interesting of the four was the session on Nutrition and Food Policy. In particular some of the comments made by Roberta K. van Haeften from the U.S.D.A.'s Office of International Cooperation and Development on the papers presented by Leonard Joy, Harold Alderman, and Marcelo Selowsky are worthy of repeating. Three areas that she thought had not received adequate attention in any of the papers and had generally been ignored in past research were: (i) how nutrition objectives should be ranked against other social and economic objectives; (ii) the most appropriate form or mix of nutrition intervention programs given a particular country's stage of development and its existing food and nutrition programs; and (iii) the degree to which different types of intervention schemes could be replicated throughout a country given the limited amount of public revenues that a government is generally willing to commit to social welfare programs. Following these comments she went on to conclude that a more systematic analysis was required, one which would ultimately lead to an explicit definition of objectives and the most cost effective programs for their realization. As a first step, she suggested that the target groups be more clearly identified, and the financial and

administrative costs of reaching each group through various intervention schemes (public food distribution, food for work, food storage and price stabilization, and supplemental feeding) be estimated and compared against current government expenditures in health and nutrition.

4. There were very few papers on food security, i.e., nationally held grain reserves, buffer stocks, emergency reserves and food aid. It seems that U.S. trade economists are more interested in the effect of exchange rate changes on U.S. exports and on the potential for developing and expanding markets for U.S. agricultural exports. My former advisor, Dr. David Blandford, has been doing some work in the area of stock management--(i) how a government distinguishes between operational stocks, buffer stocks (for price stabilization), and emergency reserves, (ii) the effect of changes in certain decision rules such as the size of the stock, timing of procurement and release of stocks on price stability, consumer welfare and government costs. According to Dave, very little research has been done on measuring the impact on nutrition from a reduction in price instability, identifying the source of the instability, or evaluating the degree to which a stock-holding operation would dampen those price fluctuations. This is to be expected given that most of these empirical models that address operational issues take a U.S. perspective. Consequently they are not directly applicable to a single developing country. Nor are these models relevant to the environment within which agricultural policy decisions are made. In particular they do not address the issue of the optimal level of price support nor do they give any insight into the amount of public stocks that can be held without depressing prices and discouraging private stock holding. In times of shortage, these decisions will depend on the availability of foreign exchange, the lead time necessary to import grain, how quickly changes in urban food prices are transmitted to the rural areas, and the resulting supply response (either from private stocks, crops substitution, or increases in yield and area planted). In contrast, in times of surplus these decisions will be affected by current stocks, projected production and the ability of the government to either finance the costs of carrying over food grains or to reduce these costs by diverting the surplus to the malnourished target groups (rural landless through food-for-work, pre-school children through supplemental feeding programs, and urban poor through the public distribution system).

5. Dave asked whether the Bank would be interested in formalizing an analytical model that would eventually be used by individual governments to determine their food storage requirements. Although such a model could not possibly consider all the areas that we discussed, he thought that it could held answer some very basic questions: (i) how to distinguish operational, buffer, and reserve stocks when they are held in the same silo; (ii) how the size of stock required changes when nutrition is incorporated into the objective function; and (iii) the rate of stock accumulation in response to high support prices when there is no mechanism to distribute food back to the poor.

6. While attending the evening receptions, I talked briefly with Dr. Robert Thompson (Purdue University). He is currently on sabbatical and directing the USDA's efforts to up-date their Grains-Oils-Livestock model. He is just now beginning to review the model in order to determine what changes would improve the usefulness of its projections. In particular the

USDA is planning to add more foodstuffs to the model, disaggregate the livestock sector and incorporate land, water and energy constraints. According to Dr. Thompson, the model does not consider how the level of private or public investment in the agricultural sector affects production. Nevertheless he expressed interest in hearing any suggestions we might have in this area. He also agreed to send a four-volume description of the model.

7. Because the session on Energy Resources conflicted with my own, I was unable to get copies of the papers. However, the most potentially interesting paper out of the five scheduled, "Agriculture Policy and Gasohol," was not given. The reason offered by other energy experts at the conference was that the funding agency had asked the authors to delay its release until some changes were made. Basically, the paper concluded that gasohol from corn would not be competitive unless corn sold for at less than $1.80/bushel. (No one that I talked to knew what implicit price for oil was assumed in the analysis.) Because this ran counter to current administration policy, it was suggested that the Office of Technology Assessment was attempting to limit distribution of the study.

8. After a brief ride up to Spokane on August 1, 1979, with some friends from Solar Energy Institute, I left the State of Washington for Boise, Idaho. The next four days I spent on vacation fishing with my father. I arrived back in Washington, D.C., on August 5, 1979.

cc: Messrs. Abbai, AGR
Berg, AGR
Goering, AGR
Pickering, AGR
Schebeck, AGR
Selowsky, DED

LHarbert:et

WC AKKD
grey by

The World Bank / 1818 H Street, N.W., Washington, D.C. 20433, U.S.A. • Telephone: (202) 477-1234 • Cables: INTBAFRAD

August 13, 1979

Mr. Guy de Brichambaut
Deputy Director (FAO/WBCP)
FAO
Via delle Terme de Caracalla
0010 Rome, Italy

Dear Guy,

As always, it was a pleasure to see you and discuss problems of mutual interest. I want to express my deep appreciation for the help of the Cooperative Program wile I was attending the recent World Conference. The retyping and reproduction of the speech given by Vice President Husain was of immeasurable help to the World Bank delegation. Please convey my thanks to those who handled this job so efficiently.

Thank you also for sending the materials which I had collected at the Conference.

As I promised, I am enclosing three copies of the Annual Report of Agriculture and Rural Development Lending for FY79. I hope it will be helpful to you and your staff in understanding the current levels and trends of operations in the Bank.

Most sincerely yours,

Ted J. Davis, Chief
Rural Operations Review and Support Unit

Encl:
cc: Messrs. S. Husain, AENVP; M. Yudelman, AGR; D. Pickering, AGR;
L. Christoffersen, AGR; M. Veraart, AGR

fellow

F. Agriculture

The World Bank

August 13, 1979

Professor Cyril Belshaw
Dept. of Anthropology
University of British Columbia
Vancouver, B.C. V6T 1WS
Canada

Dear Prof. Belshaw:

While attending a seminar in Borg Warterstein, Lita Osmundsen suggested that I get in touch with you to discuss the issues related to the increasing use of social anthropology in development work. I am keenly interested in these issues and I am well aware of your own long standing interest in the use of anthropological disciplines for policy making and applied work. Currently, I am working as Senior Sociologist for Agriculture and Rural Development at the World Bank and these issues are of direct relevance to my work.

Until we find an opportunity to meet, I would be happy to establish a dialogue perhaps through participating in the discussion of Current Anthropology articles related to development project work.

As you may see from the attached, I will be at NIAS on sabbatical from my job at the World Bank, and I will thus have more time in the coming months for research and writing.

Looking forward to hearing from you,

Yours,

Michael Cernea

S. Agriculture

Mr. J.D. Von Pischke, AGREP

August 11, 1979

G.F. Donaldson, Chief, AGREP

Terms of Reference - Second International Conference on Rural Finance Research Issues

1. These terms of reference supercede those dated August 6, 1979.

2. Proceed to Calgary, Alberta, to attend the Second International Conference on Rural Finance Research Issues from August 29 to September 1, 1979, and to present at that conference your paper undertaken jointly with Prof. Dale Adams, entitled, "Fungibility and the Design and Evaluation of Agricultural Credit Projects."

3. Upon your return file a back to office report summarizing the main points of this conference.

cc: M. Yudelman AGR
D. Pickering AGR
D. Argyle AGR

JDVon Pischke: bam

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

yellow

OFFICE MEMORANDUM

✓ I - Agriculture

cc ERI - General

TO: Mr. Ben Thoolen, Acting Assistant Director, AGR

DATE: August 10, 1979

FROM: A. Musa Ahmad, AGROR

SUBJECT: Bank Relations with Non-governmental Aid Organizations

1. Mr. Masoni, in his memorandum of May 7, 1979, addressed to some of the CPS Directors, Advisors, CPSVP and PAS and Regional Program coordinators, requested for information on cases in which there were collaboration between the Bank and NGOs. On the basis of this information, Mr. Masoni proposes to prepare a review "in terms of the value of NGO work as a support and amplification of Bank work". Before, however, starting on the preparation of the review, Mr. Masoni proposes to meet the addressees of his memorandum early in August to gather their views on "the conceptual aspects of the problem of co-opting major NGOs into Bank projects and on the general future course of Bank-NGO relations".

2. Bank's collaboration with other organizations essentially must serve Bank's operations. The basic question therefore is whether NGO's, to use Mr. Masoni's words, can support and amplify Bank work. On the face of it the answer seems to be in the negative as the objectives and motivations of the two organizations are very different. While the Bank almost exclusively focuses on economic development through projects with adequate internal rate of return the motivation of the NGOs is philanthropic and geared to improving the quality of life of the people with whom they work. Bank's operations cover extensive geographic areas and large populations while the NGOs work in limited areas with communities which by comparison with Bank operations are very small indeed. This very diversity perhaps provides the rationale for Bank and NGO collaboration. The very scale of operations of the Bank generally preclude ready access to knowledge and information which can help in designing more effective project approaches for poverty alleviation in rural and urban areas. NGOs working through dedicated persons with small groups of people are expected to have better appreciation of the needs of the people and responses which are more appropriate in the context of socio-economic environment of the community. Availability to the Bank staff of the experiences of NGOs in dealing with various types of problems of the poor in varied cultural and country situations can be very valuable for the design of the Bank's poverty oriented projects. Should the Bank staff find NGO approaches suitable in Bank projects, NGOs concerned could provide support in preparing project components with such approaches, in training personnel to deal with them and even, if appropriate for the NGO and the government, be entrusted with the implementation of such types of components.

3. Bank staff, as a normal routine, contact and consult with local multi-lateral and bi-lateral aid agencies in project work. They could be advised to do so in respect of NGOs. Our resident missions could be asked to acquire information on the expertise and specific activities of NGOs operating in their jurisdiction and brief Bank project missions.

4. Host governments attitude to NGOs operating in their countries is a critical issue for Bank's collaboration with them. Bank should, as a matter of general principle, avoid cooperation and collaboration with NGOs not favourably considered by the host government.

5. It would appear that Bank's collaborative efforts with NGOs can be effectively developed only in the context of specific country and project situations as it is extremely difficult to draw up, for this purpose, a set of guidelines or procedures to be followed either by the Bank staff or an NGO.

6. Mr. Masoni's review of Bank-wide experiences in collaborating/cooperating with NGOs mentioned earlier in para. 1, should provide adequate basis for an in-depth consideration of the conceptual issues for collaboration between the Bank and NGOs. Collaboration is, however, a two-way business and we should have a clear idea as to why NGOs should wish to collaborate with the Bank and whether their expectations from the Bank are such as would lead to unhappy consequences in our relations with them. We should also find out what the NGOs consider as their possible contributions to Bank operations.

7. On the initiative of the German ED, Mr. Kurth, IRD proposes to hold a one day meeting with a group of NGOs from the USA and Europe on November 2, 1979. Mr. Masoni, in his memorandum of June 20, 1979, circulated a tentative program for the meeting and invited suggestions on it. One of the items concerns us specifically - CPS presentation on rural and urban development and opportunities for NGO operational cooperation with the Bank.

8. Some of the NGOs, particularly from Germany, have been in contact with the Bank for a fairly long time to explore possibilities of collaborative efforts in poverty alleviation. In the forthcoming meeting the NGOs may conceivably seek to develop at least a framework for a program of action with regard to collaboration between the Bank and the NGOs. We should carefully consider various aspects of the issue of collaboration and in the light thereof determine how best to handle the proposed meeting. I would recommend that we await Mr. Masoni's review mentioned in his memorandum of May 7, 1979 before we agree to a CPS presentation as suggested in the tentative program.

AMAhmad/cc

cc: Messrs. M. Yudelman, AGR; L. Christoffersen, AGR;, T. Davis, AGROR

S. Agriculture

OFFICE MEMORANDUM

TO: Mr. Leif Christoffersen, Assist. Dir. for Nutrition and Rural Development (AGR)

DATE: August 10, 1979

FROM: Guido J. Deboeck (AGR)

SUBJECT: Development of a Management Information System

As requested, I attach some preliminary thoughts on development of a management information system.

Attachment

GDeboeck:dc

cc: Mr. Ted Davis

DRAFT

PRELIMINARY THOUGHTS ON THE DEVELOPMENT OF A MANAGEMENT INFORMATION SYSTEM

I. Introduction

The AGR data bank was originally established to facilitate RORSU's internal monitoring function. Both the content and structure of the AGR data bank were designed in function of that objective.

The AGR data bank contains information for all agriculture and rural development projects approved since FY74 on (i) 45 project cost categories; (ii) direct and indirect beneficiaries, (iii) 10 types of social beneficiaries, (iv) annual incremental production effects of 50 commodities, and (v) five types of employment effects. In addition to this, flags have been included to identify separately rural development projects, multisectoral projects, projects prepared by FAO and projects with a monitoring and evaluation component. A detailed description of the content of the AGR data bank can be found in "Agriculture and Rural Development Data Bank on FY74-78 Projects."

Data for all these variables on all agriculture and rural development projects approved over the last six years, is contained in a file called "RURAL." The Structure of the "RURAL" Master file is shown in Annex 1. Variables or fields, identified by an acronym, an alias and their data format, are grouped in segments identified by a segmentname and type. Each segment is linked into a hierarchical structure (see picture of the "RURAL" file in Annex 1).

The RURAL file itself is only a segment of the file "LENDING", created by Programming and Budgeting Department. The Master file "LENDING" contains data on (i) the financing of Bank/IDA projects, including cofinancing by multilateral and bilateral agencies; (ii) supervision, including all

information contained on the Supervision Summary Report; and (iii) time recording, i.e. actual and planned person weeks for preappraisal, appraisal, negotiations, supervision and completion of each project in the project cycle. Annex 2 shows the current structure of file "LENDING." Annexes 3 to 5 show the structure and content of the "SPN" file (supervision), "TRS" file (time recording) and "STAFF" file, respectively.

The establishment of the AGR data bank has affected both RORSU itself and its relations with other departments, divisions or units in the Bank. The computerization of the AGR data has substantially increased RORSU's capacity for providing information on a variety of issues related to agriculture and rural development lending. However, RORSU's information support services have also absorbed an increasing amount of professional and research assistant time. This is not because computerized data retrieval is more time consuming, on the contrary, but an increased demand and increasing complexity of the ad hoc requests for information have increased the time spent on information support functions. Actually, a lot of the questions now being raised about AGR lending, could without a computerized system, never be answered.

While RORSU was among the first to follow thelead provided by P & B in building a computerized data bank, many other departments have since then attached detailed data files onto the main framework provided by the "LENDING" file. The Office of Environment and Health Affairs has built a "HEALTH" data file. The Energy Division of the Bank and IFC constructed their own data files. More recently Regional Managers in East Asia and South Asia have assigned people to retrieve data from the system and to design region-specific data banks (e.g. South Asia already has a separate data file, which among others contains the names of project officers and is attached to the "LENDING" file). Annex 6 lists the current users of the system.

Other departments in CPS (e.g. education) are considering to translate the information already stored on tape on CAD's Computer to the TYMSHARE System. The main motivation for this is the increased flexibility in generation of reports obtained by the use of FOCUS, i.e. a high level English-like user-oriented computer language, in the CMS environment (i.e. the Conversational Monitoring System or interactive mode in which data is stored and retrieved from the system.

In sum, the eestablishmentof the AGR data bank has not only provided greater exposure to RORSU, -- that is those who know about the existence of RORSU, know about it primarily because of its internal monitoring reports and its information support services --, but has also put heavier demands on its scarce manpower time. It is undeniable that the intense effort generated last year to establish the AGR data bank has affected the time spent on project specific monitoring in FY79. At the same time, however, the adoption by an increasing number of departments in CPS and regions of the same framework for the establishment of information systems will in the near future provide opportunities for more effective management and cross fertilization of ideas (even across artificial bureaucratic territories).

The establishment of the above described data bank should therefore be seen as the first step in the direction of decentralized Bank-wide management information system that will lend important support to decision-making at various levels about future Bank operations.

The remainder of this paper outlines various options for the development of such a system. The main focus is first on the expansion of agriculture and rural development data bank. Next, options are discussed for increasing the accessibility of the system. Finally, a few paragraphs are devoted to the introduction of multifunctional support systems.

II. Expansion of the Existing Data Bank

There are many ways for further developmentof the AGR data bank. An outline of a few possible directions is shown in Figure 1. The following sections will discuss a series of options for expansion of the existing data files. Each of these has different resource implications that could be more precisely estimated if more specific objectives were given.

1. Subsectoral Data Files

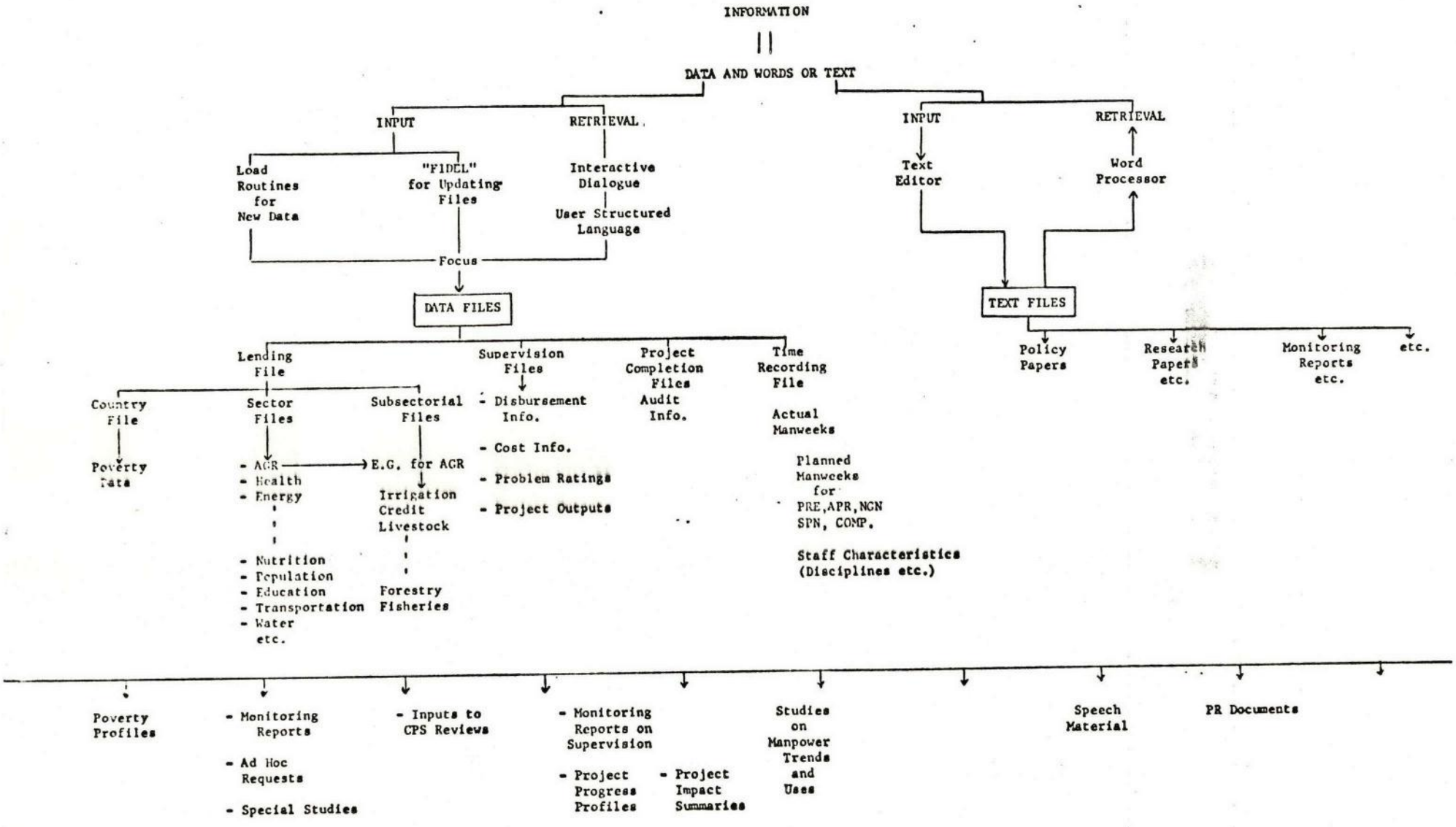
Various subsectoral data files would permit more in-depth monitoring of subsectoral policies, e.g. on irrigation, credit, livestock, forestry, fisheries, etc. Requests to establish subsectoral files have already been formulated (e.g. for credit). For some subsectors a substantial amount of work has already been done in terms of defining the indicators and retrieving the data (e.g. the detailed livestock information collected by D. Sutherland will lend itself easily to the establishment of a subsectoral datafile on livestock investments). Depending on the amount of detail desired and the size of the subsector, each subsectoral data file may require two to six person weeks of research assistant time and two person weeks of professional time.

2. Institutional Data

Initial steps were made to define a framework for an institutional data file and institutional indicators, however, the complexity of the institutional factors and to a certain extent lack of clear ideas on how the information would be used, have prohibited substantial progress in this area. Development of a useful institutional data file may therefore require initially substantial more professional input to define purposes, framework and indicators than research assistant time. To test the feasibility of a meaningful institutional data file one month of professional time and two months of research assistant time may be required.

Figure 1

DEVELOPMENT OF A MANAGEMENT INFORMATION SYSTEM (M.I.S.)



3. Poverty Data

As indicated above, the country data file contains only information on total population, average family size, GNP per capita, absolute and relative poverty income levels, and percentage of rural population in poverty for each country. Nutritional and other indicators of the quality of life could substantially increase the capacities to refine the definition of poverty target groups and subsequently the monitoring capacity. It would also permit the monitoring of new five year lending programs, such as the one for nutrition, currently being elaborated. Expansion of the country data file does not require the retriveal of substantial amounts of new data; it would involve collaboration with statistical divisions in the Bank (EPD) and with P & B and/or CAD to transfer data currently on tapes to the TYMSHARE system estimate: three weeks of professional time.

4. Supervision Data

P & B's supervision data file contains at present all information from the Supervision Summary Report (Form 590). Recent changes of this form will allow new types of analysis of supervision information. However, I believe that, as indicated in my Technical Note on Internal Monitoring of January 26, 1979, there is substantial scope for systematizing more information on the progress of projects under implementaiton, including the nature of problems encountered from the supervision reports. A minimal effort to elaborate a meaningful supervision data file on AGR projects could easily consume six to ten person months of research assistant time and several person weeks of professional time. In essence, an effort of the same scope of magnitude as done for the monitoring of lending operations, could substantially improve our monitoring of projects under supervision.

5. Disbursement Data

Actual disbursement information on all projects currently under implementation has recently been added to the system. (See Annex 3 segment "DSDDATA" in "SPN" file). Controller's Department will in the future regularly update the actual disbursement information on the system.

If original disbursement information for AGR projects would be loaded into the system, comparisons of actual vs original disbursements would be feasible. The original disbursement information for all AGR projects currently under implementation has already been retrieved, but no decision has yet been made about loading it onto the system. The resources to do so would be minimal: two weeks of key punching and one week of programming time.

6. Completion Data

Another option for expansion of the system would be to include the most crucial information from project completion and audit reports. This would enable comparisons to be made between actual and appraisal estimates of the costs, number of beneficiaries, the expected outputs, effects and impact of the projects, to the extent that such information is contained in the project audit and completion reports. Construction of a data file on completed projects is likely to absorb four person weeks of professional time (for structuring) and eight weeks of research assistant time.

7. Nutritional Data Bank

In addition to the above options for expansion of an existing sectoral data bank for agriculture and rural development, there may also be a need for the creation of a separate sectoral data bank for nutrition. This should not be confused with the addition of nutritional indicators to the country data file, which would primarily benefit the definition of poverty target

groups and the monitoring of poverty oriented lending. A nutritional data bank on the other hand could be structured to feed directly into the design of nutritional projects and the monitoring of the nutritional lending program (similar to the role of the "HEALTH" data file created by OEHA). Depending on the desired detail an initial effort to structure such a Nutritional data file may require one to two months professional time. Depending on the amount of data required and its availability, retrieval and loading nutritional data in the system may require several person-weeks of research assistant time.

In sum, there are many mutually non-exclusive options for expansion of the existing data bank. It would be wrong, however, to assume that the more elaborate the data bank, the more useful it is likely to be to a larger number of Bank managers and staff. The usefulness of the data bank will depend on the degree to which the information available in the system can be used to match what is demanded. A good management information system should anticipate the information needs of its potential users. Therefore, selection among the options listed above or others, should be preceeded by a clear definition of the purposes of the system, indentification of its potential users and their information requirements. In other words, an efficient management information system can not be developed unless management itself is willing to collaborate in defining and predicting its future information needs.

III. Increasing Access to the System

The end result of implementing any of the above options would be a more elaborate and detailed data bank. Although the system provides enormous flexibility in generating reports, more data in the system will only mean a larger variety of analyses that can be undertaken. This alone would not make it a management information system.

To develop a management information system, it would be essential to increase the accessibility of the system.

At present anyone who applied for an account number for the use of TYMSHARE system and who obtained the permission of the Data Base Administrator (Mr. T. Allen in P & B), can have access to the system (see my memorandum of July 28, 1979 to Mr. Christoffersen).

Retrieval of data from the system requires, however, some programming skills in FOCUS. Although FOCUS is a very simple English-like programming language (TYMSHARE's Primer on FOCUS is self-instructional pamphlet of 77 pages),and easy to learn, few staff have so far developed skills in it.

The major advantage of FOCUS over other high level programming languages is that with a minimum amount of English-like instructions any type of information can be retrieved from the data bank in a format (table or graph) the user desires. Any retrieval process requires that the user:

(a) Selects - the file(s) from which data need to be retrieved e.g. Table File Rural;

- the variable(s) or types of data required, e.g. Sum Bankida, total project costs etc;

- the sorting keys, e.g. by fiscal year(s), region(s) by sector(s), by subsector(s), by department(s) or by division(s);

- the constraints on the data, e.g. if fiscal years from 1975 to 1979, if region is East Africa, etc.

(b) Specifies the content and format of:

- the title
- subheadings, and
- footnotes for the table or graph

As an illustration a few FOCUS programs used for the production of the tables of the Annual Report on AGR lending operations, are shown in Annex 7.

Thus, although these are no major obstacles for more staff to be able to use the system, one type of development that may be considered to increase accessibility would be to organize training sessions on the use of FOCUS for retrieval of data from the AGR data bank. Assuming the target group for such training would be about one person per AGR division plus, a few research assistants from the AGR Department (or a total of 30-35) about three weeks of professional time may be required for preparation and organization of three courses of ten hours spread over five days for 10-12 participants each.

Alternatively or in addition to these training courses accessibility to the system may be greatly enhanced by the development of a software package that would permit any user without programming skills or knowledge of the structure or content of the data bank, to retrieve data from the system. Such a software package would consist of a series of routines which would guide the user through menu's in making the above required choices to obtain information from the system. For example, such a menu-type program should be able to brief users who are unfamiliar with the system should offer the choice between using an existing table/graph routine or creating a new one; and if the latter is selected should offer sequence of menu's for selection of files,

fields, sortingkeys and constraints. A prototype of such a software package has already been written. Annex 8 shows the dialogue between the computer and a user without programming skills (where the user responses are underlined) to retrieve a table on the distribution of major cost components across regions for all agriculture and rural development projects approved in FY79.

The example in Annex 8 shows that the development of such a software package would make the data bank not only accessible to Bank staff without programming skills, but also to all Bank managers. An efficient management information system should permit any manager to have instant access to the information he/she needs in the format he/she desires. To reach that goal, the design of a software package is essential. An initial effort may require 4-6 man weeks of time.

Similarly the updating of the data bank can be facilitated by the use of an existing interactive software package called FIDEL. In essence, FIDEL would allow secretaries to type the figures in forms, created on a CRT-terminal, that would be self-explanatory. Again to program all forms required to update the existing data bank would require about four to six weeks time.

In sum, increasing accessibility or moving the system from a static data bank to a dynamic management information system may be of greater importance and urgency than quantitative expansion of the data in the system. As more users become familiar with the system, more will also be able to participate intellegently in the future planning and design of the system.

IV. Towards Multifunctional Support Systems

Previous sections outlined options for enlargement of the data bank and increasing access to the data. Information is, however, more than data.

Figure 1, which synthesized these preliminary thoughts towards the development of a management information system, defined information as data and words. Similar to the creation of a data bank, sequences of words or text could be stored in the computer. Collections or libraries of text materials stored in the computer would permit instant retrieval for comparison and analysis of relevant pages or paragraphs. For example, research on innovative features of projects and/or the design of projects would be greatly facilitated if project staff would through the selection of key words be able to instantly retrieve all pages or paragraphs from Bank projects dealing with, say, innovative approaches to community development applied in rural development projects approved over the last three years. Similarly, monitoring and/or research on project progress or impact would be facilitated if instead of physical supervision liabraries, one would have electronic means for sorting, comparing and analyzing progress in a particular area across projects under implementation in various regions. The mere volume of projects under supervision makes any research of this type at present very labor intensive and thus extremely costly.

Another application of computerized text files would be the storage of documents, e.g. policy papers, monitoring reports, etc. which are often referenced or quoted in many documents (e.g., speeches, public relations documents, etc). Electronical storage of such documents would not only permit instant retrieval and integration of relevant sections in the production of new documents, but also facilitate regular updating.

As word processing is increasingly being used for the production of research, policy papers and appraisal reports it will increasingly be easier to computerize Bank documents.

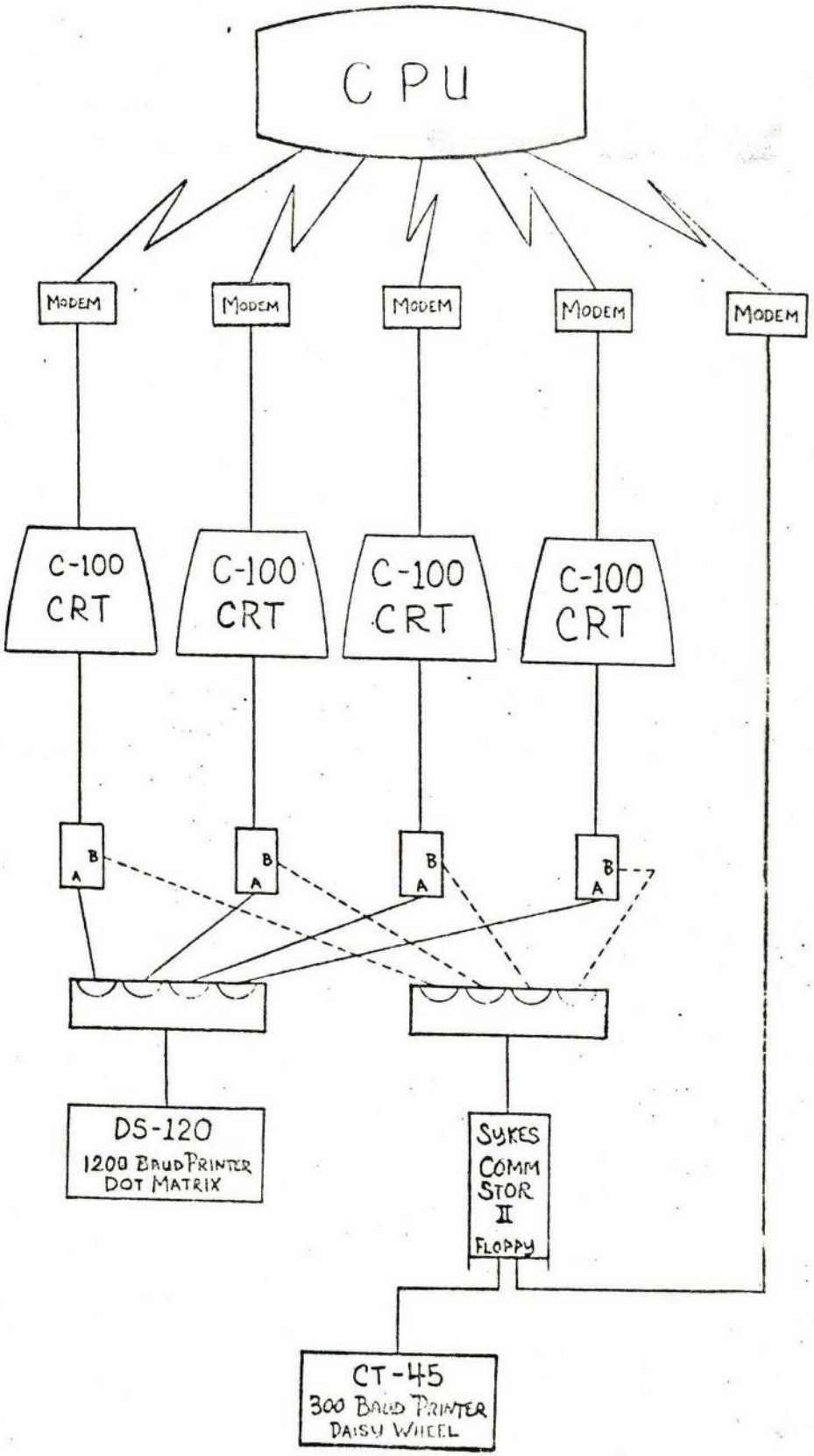
Word processing systems that use the same formating of text on floppy disks as the one readable for ordinary processing by a computer would permit with little or no additional resources to build text files on the computer. With simple computer programs, instant searches could then be made from hundreds of documents to obtain relevant sections on one or several key words identified by the user.

The integration of data processing and word processing systems, permiting instant retrieval of tables, graphs and texts, would lead to the adoption of multifunctional support systems. A sketch of such a multifunctional support system is shown in Figure 2.

Some departments in the Bank are already experimenting with such systems. In Programming and Budgeting Department, for example, word processing and data processing were recently integrated by the purchase of the UNIX system, a large minicomputer of the DEC's PDP/11 family. Managers of three regions are considering purchasing their own UNIX system!

It is difficult to imagine at present all the various ways in which computerization of more data and the most important Bank documents could increase the effectiveness of Bank operations. However, while the effectiveness of identification, design, supervision and evaluation of projects will be affected, the cost of electronic storage of large quantitites of data and text materials will continue to decrease. This together with the rising inflation and cost of labor will make "the old-way-of-doing-things" more expensive and less and less acceptable.

Figure 2: Sketch of a
Multifunctional Support System for A Division
With 10-12 Professionals



Computer storing large data bank and text files

↓

with telephone communications via Modems to

↓

CRT or video terminal or integrated word and data processing

↓

Multiplexers for simultaneous use of

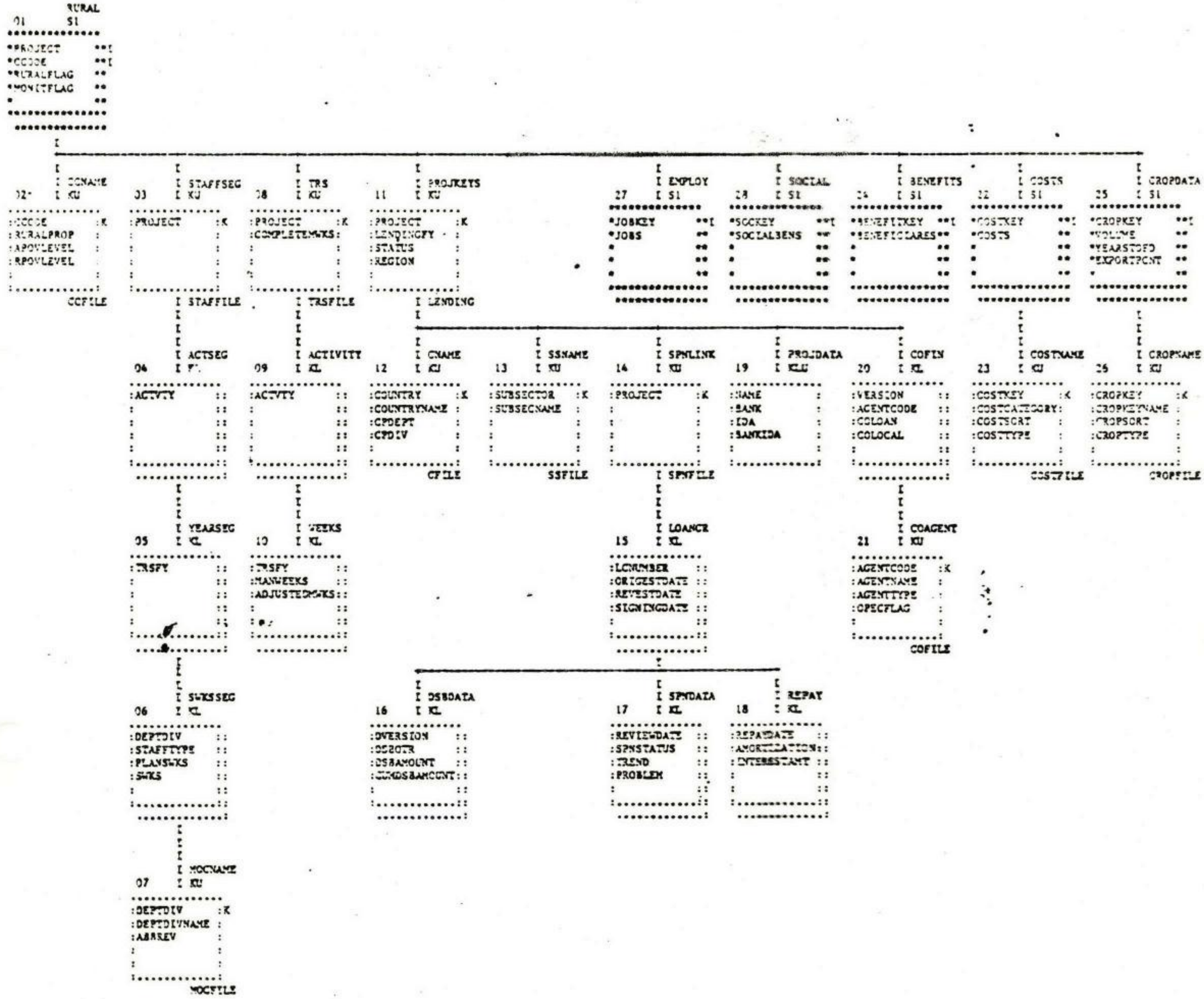
High speed printers and Floppy Disk Mass Storage Devices and

High quality printer

ANNEX 1

NUMBER OF ERRORS= 0
NUMBER OF SEGMENTS= 29 FIELDS= 138 INDEXES= 7
TOTAL LENGTH OF ALL FIELDS= 471

STRUCTURE OF FOCUS FILE RURAL ON 07/17/79 AT 14.39.26



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RURAL MASTER A (cont'd)

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ANNEX 2

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TOTAL LENGTH OF ALL FIELDS= 371

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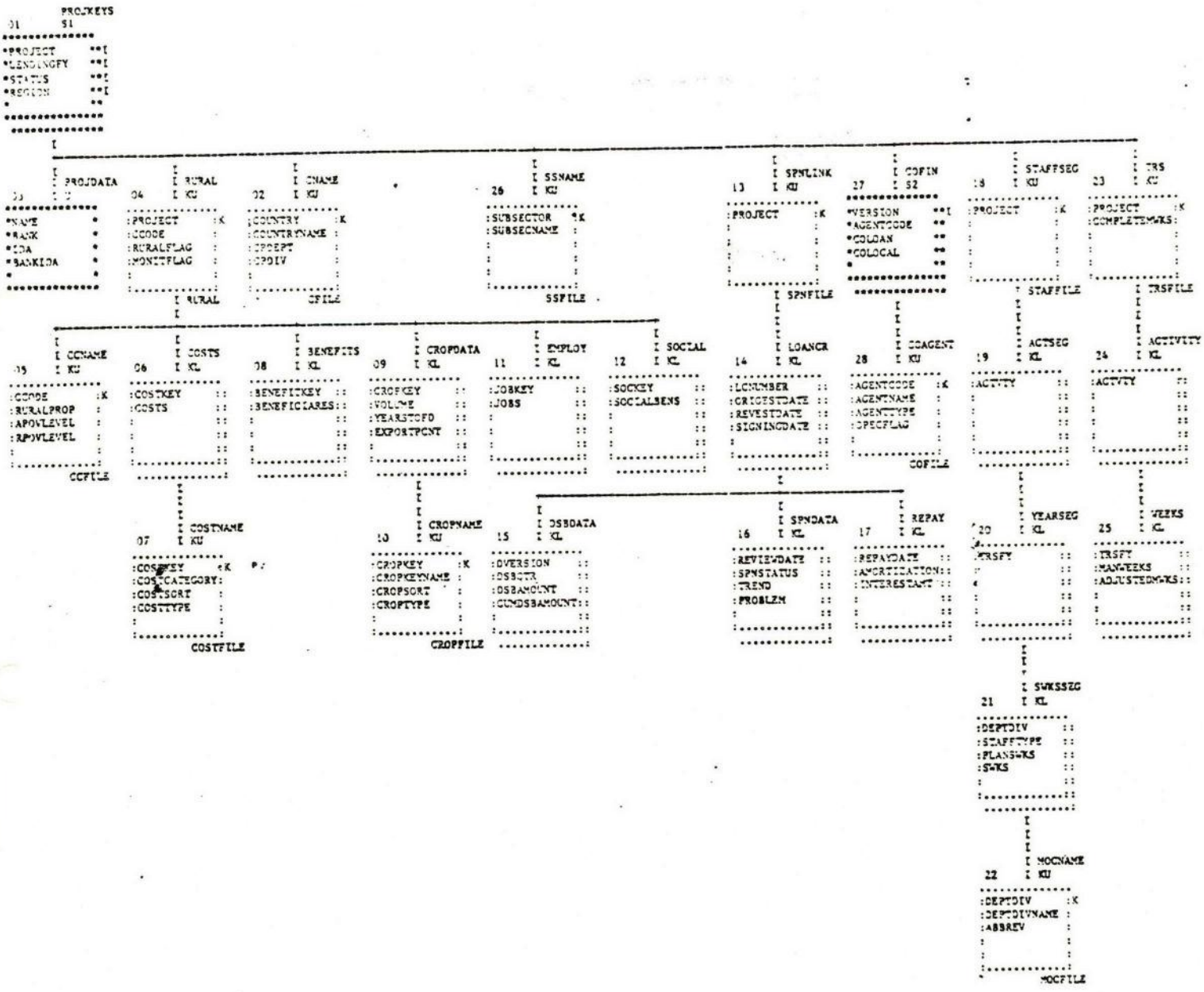

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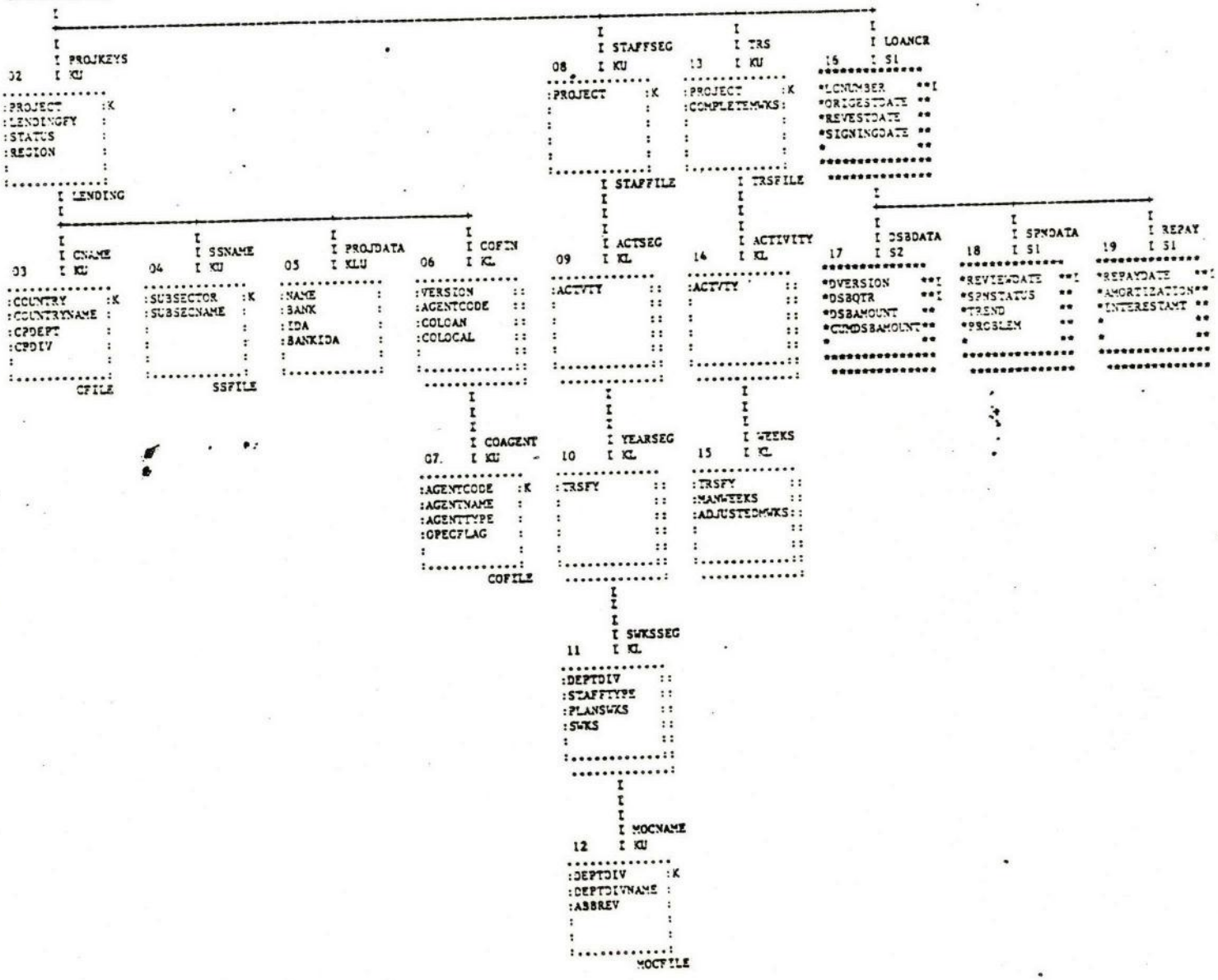
SEGNAME=TRS, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=TRSFILE,      CRKEY=PROJECT,$
SEGNAME=ACTIVITY, PARENT=TRS, SEGTYPE=KL
     CRFILE=TRSFILE,$
SEGNAME=WEEKS, PARENT=ACTIVITY, SEGTYPE=KL
     CRFILE=TRSFILE,$
SEGNAME=STAFFSEG, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=STAFFILE, CRKEY=PROJECT,$
SEGNAME=ACTSEG, PARENT=STAFFSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=YEARSEG, PARENT=ACTSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=SWKSSEG, PARENT=YEARSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=MOCNAME, PARENT=SWKSSEG, SEGTYPE=KU
     CRFILE=MOCFILE, CRKEY=DEPTDIV,$
SEGNAME=SPNLINK, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=SPNFILE,  CRKEY=PROJECT,$
SEGNAME=LOANCR, PARENT=SPNLINK, SEGTYPE=KL
     CRFILE=SPNFILE,$
SEGNAME=DSBDATA, PARENT=LOANCR, SEGTYPE=KL
     CRFILE=SPNFILE,$
SEGNAME=SPNDATA, PARENT=LOANCR, SEGTYPE=KL
     CRFILE=SPNFILE,$
SEGNAME=REPAY, PARENT=LOANCR, SEGTYPE=KL
     CRFILE=SPNFILE,$
SEGNAME=RURAL, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=RURAL,     CRKEY=PROJECT,$
SEGNAME=COSTS, PARENT=RURAL, SEGTYPE=KL
     CRFILE=RURAL,$
SEGNAME=BENEFITS, PARENT=RURAL, SEGTYPE=KL
     CRFILE=RURAL,$
SEGNAME=CROPDATA, PARENT=RURAL, SEGTYPE=KL
     CRFILE=RURAL,$
SEGNAME=EMPLOY, PARENT=RURAL, SEGTYPE=KL
     CRFILE=RURAL,$
SEGNAME=SOCIAL, PARENT=RURAL, SEGTYPE=KL
     CRFILE=RURAL,$
SEGNAME=CCNAME, PARENT=RURAL, SEGTYPE=KU
     CRFILE=CCFILE, CRKEY=CCODE,$
SEGNAME=COSTNAME, PARENT=COSTS, SEGTYPE=KU
     CRFILE=COSTFILE, CRKEY=COSTKEY,$
SEGNAME=CROPNAME, PARENT=CROPDATA, SEGTYPE=KU
     CRFILE=CROPFILE, CRKEY=CROPKEY,$
```

```
NUMBER OF ERRORS=    0
NUMBER OF SEGMENTS=  19  FIELDS= 103  INDEXES=  5
TOTAL LENGTH OF ALL FIELDS= 568

          STRUCTURE OF FOCUS    FILE SPNFILE  ON 07/17/79 AT 14.27.10

        SPNLINK
01      S1
*************
*PROJECT     **I
*            **
*            **
*            **
*            **
*************
 ************
```



SPNFILE MASTER A

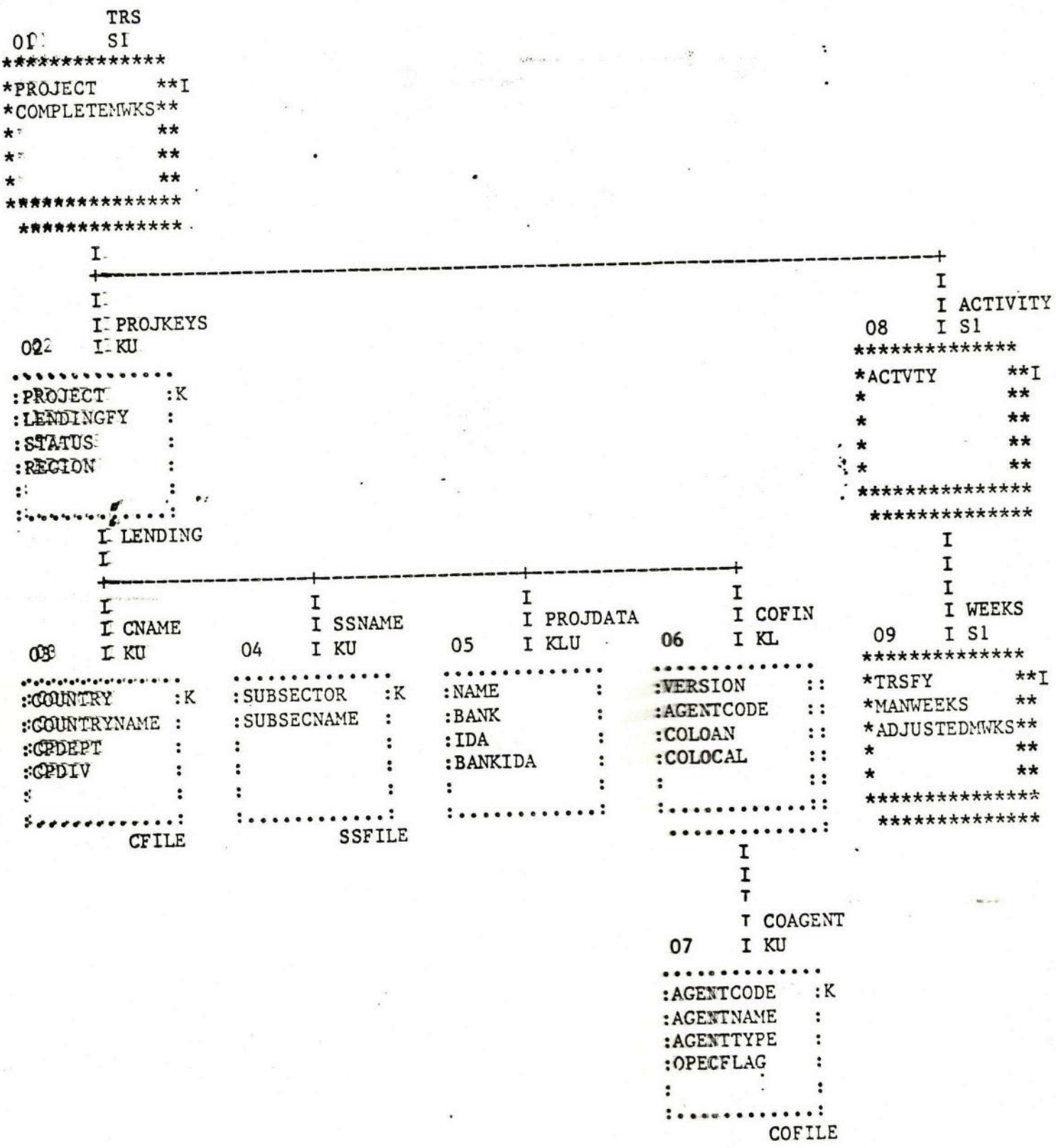
```
FILENAME=SPNFILE,      SUFFIX=FOC,$
     SEGNAME=SPNLINK, PARENT=, SEGTYPE=S1,$
FIELD= PROJECT,              ALIAS= S1,  FIELDTYPE=I, FORMAT= A8,$
     SEGNAME=LOANCR, PARENT=SPNLINK, SEGTYPE=S1,$
FIELD= LCNUMBER,             ALIAS= S2,  FIELDTYPE=I, FORMAT= A6,$
FIELD= ORIGESTDATE,          ALIAS= S3,               FORMAT= I6MDY,$
FIELD= REVESTDATE,           ALIAS= S4,               FORMAT= I6MDY,$
FIELD= SIGNINGDATE,          ALIAS= S5,               FORMAT= I6MDY,$
FIELD= EFFECTDATE,           ALIAS= S6,               FORMAT= I6MDY,$
FIELD= 1STREPAYMENT,         ALIAS= S7,               FORMAT= I6MDY,$
FIELD= MATURITYDATE,         ALIAS= S8,               FORMAT= I6MDY,$
FIELD= CLOSINGDATE,          ALIAS= S9,               FORMAT= I6MDY,$
FIELD= PCRDATE,              ALIAS= S10,              FORMAT= I6MDY,$
FIELD= ORIGLCAMOUNT,         ALIAS= S11,              FORMAT= F9.1,$
FIELD= AMOUNTSOLD,           ALIAS= S12,              FORMAT= F9.1,$
FIELD= INTERESTRATE,         ALIAS= S13,              FORMAT= F6.4,$
FIELD= PAYMENTPLAN,          ALIAS= S14,              FORMAT= A1,$
FIELD= GRACEPERIOD,          ALIAS= S15,              FORMAT= F4.1,$
     SEGNAME=DSBDATA, PARENT=LOANCR, SEGTYPE=S2,$
FIELD= DVERSION,             ALIAS= S20, FIELDTYPE=I, FORMAT= A1,$
FIELD= DSBQTR,               ALIAS= S21, FIELDTYPE=I, FORMAT= I6MDY,$
FIELD= DSBAMOUNT,            ALIAS= S22,              FORMAT= F9.2,$
FIELD= CUMDSBAMOUNT,         ALIAS= S23,              FORMAT= F9.2,$
FIELD= CANCELL,              ALIAS= S24,              FORMAT= F9.2,$
FIELD= CUMCANCELL,           ALIAS= S25,              FORMAT= F9.2,$
     SEGNAME=SPNDATA, PARENT=LOANCR, SEGTYPE=S1,$
FIELD= REVIEWDATE,           ALIAS= S30, FIELDTYPE=I, FORMAT= I6MDY,$
FIELD= SPNSTATUS,            ALIAS= S31,              FORMAT= A1,$
FIELD= TREND,                ALIAS= S32,              FORMAT= A1,$
FIELD= PROBLEM,              ALIAS= S33,              FORMAT= A1,$
FIELD= TYPEPROBLEM,          ALIAS= S34,              FORMAT= A5,$
FIELD= LATESTCOST,           ALIAS= S35,              FORMAT= F9.1,$
FIELD= ESTCLOSING,           ALIAS= S36,              FORMAT= I6MDY,$
FIELD= RECINTERVAL,          ALIAS= S37,              FORMAT= I3,$
FIELD= ACTINTERVAL,          ALIAS= S38,              FORMAT= I3,$
FIELD= RPTINTERVAL,          ALIAS= S39,              FORMAT= I3,$
     SEGNAME=REPAY, PARENT=LOANCR, SEGTYPE=S1,$
FIELD= REPAYDATE,            ALIAS= S50, FIELDTYPE=I, FORMAT= I6MDY,$
FIELD= AMORTIZATION,         ALIAS= S51,              FORMAT= F9.2,$
FIELD= INTERESTAMT,          ALIAS= S52,              FORMAT= F9.2,$
```

SPNFILE MASTER A (cont'd)

```
SEGNAME=PROJKEYS, PARENT=SPNLINK, SEGTYPE=KU
     CRFILE=LENDING,     CRKEY=PROJECT,$
SEGNAME=PROJDATA, PARENT=PROJKEYS, SEGTYPE=KLU
     CRFILE=LENDING,$
SEGNAME=COFIN, PARENT=PROJKEYS, SEGTYPE=KL
     CRFILE=LENDING,$
SEGNAME=CNAME, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=CFILE, CRKEY=COUNTRY,$
SEGNAME=SSNAME, PARENT=PROJKEYS, SEGTYPE=KU
     CRFILE=SSFILE, CRKEY=SUBSECTOR,$
SEGNAME=COAGENT, PARENT=COFIN, SEGTYPE=KU
     CRFILE=COFILE, CRKEY=AGENTCODE,$
SEGNAME=TRS, PARENT=SPNLINK, SEGTYPE=KU
     CRFILE=TRSFILE,     CRKEY=PROJECT,$
SEGNAME=ACTIVITY, PARENT=TRS, SEGTYPE=KL
     CRFILE=TRSFILE,$
SEGNAME=WEEKS, PARENT=ACTIVITY, SEGTYPE=KL
     CRFILE=TRSFILE,$
SEGNAME=STAFFSEG, PARENT=SPNLINK, SEGTYPE=KU
     CRFILE=STAFFILE, CRKEY=PROJECT,$
SEGNAME=ACTSEG, PARENT=STAFFSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=YEARSEG, PARENT=ACTSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=SWKSSEG, PARENT=YEARSEG, SEGTYPE=KL
     CRFILE=STAFFILE,$
SEGNAME=MOCNAME, PARENT=SWKSSEG, SEGTYPE=KU
     CRFILE=MOCFILE, CRKEY=DEPTDIV,$
```

NUMBER OF ERRORS= 0
NUMBER OF SEGMENTS= 9 FIELDS= 59 INDEXES= 3
TOTAL LENGTH OF ALL FIELDS= 392

STRUCTURE OF FOCUS FILE TRSFILE ON 07/17/79 AT 14.15.08



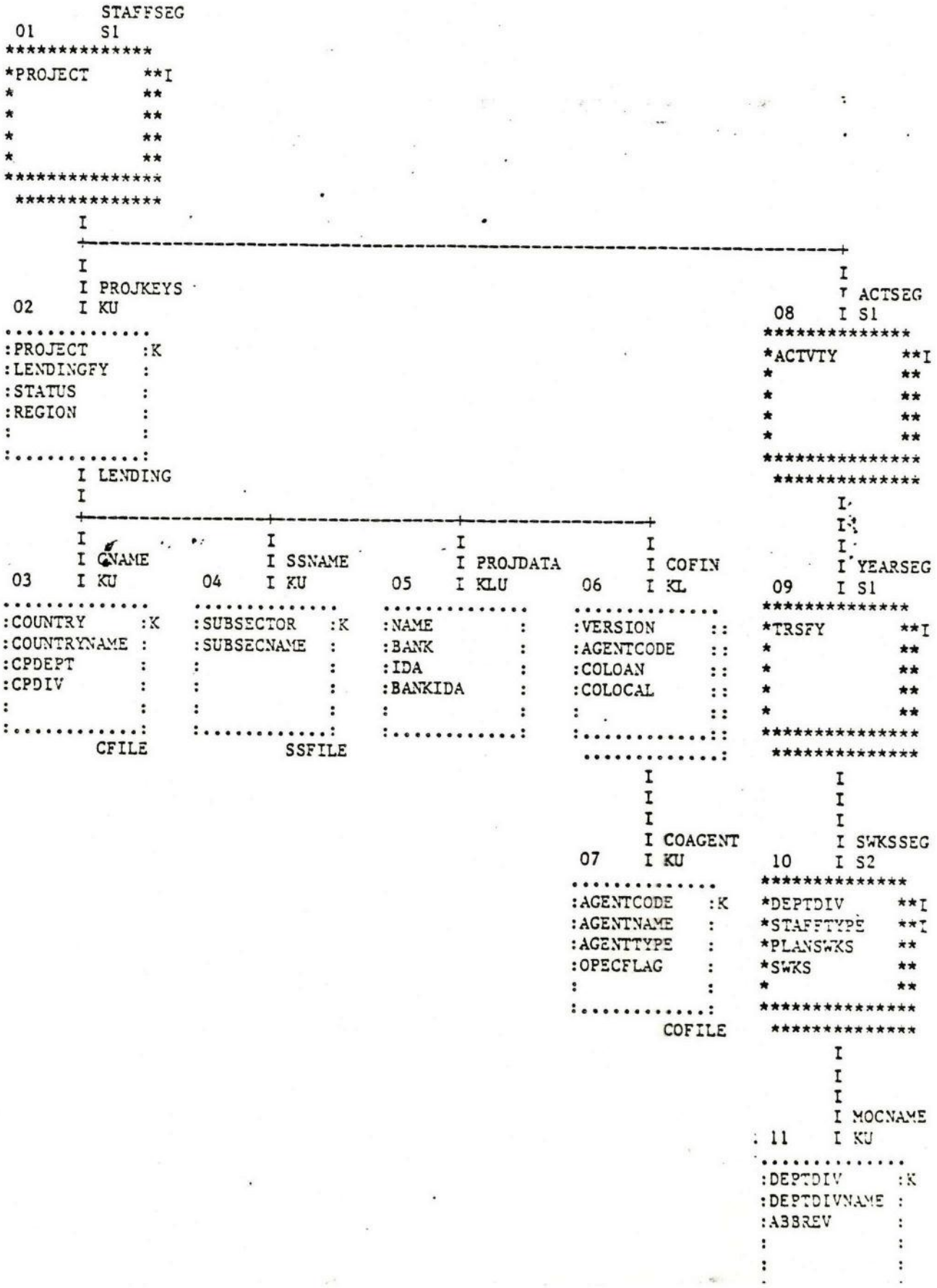
TRSFILE MASTER A

```
FILENAME=TRSFILE,       SUFFIX=FOC,$
     SEGNAME=TRS, PARENT=, SEGTYPE=S1,$
FIELD= PROJECT,         ALIAS= T10, FIELDTYPE=I, FORMAT= A8,$
FIELD= COMPLETEMWKS,    ALIAS= T11,              FORMAT= F6.1,$
     SEGNAME=ACTIVITY, PARENT=TRS,     SEGTYPE=S1,$
FIELD= ACTVTY,          ALIAS= T20, FIELDTYPE=I, FORMAT= A4,$
     SEGNAME=WEEKS, PARENT=ACTIVITY,     SEGTYPE=S1,$
FIELD= TRSFY,           ALIAS= T30, FIELDTYPE=I, FORMAT= I2,$
FIELD= MANWEEKS,        ALIAS= T31,              FORMAT= F9.1,$
FIELD= ADJUSTEDMWKS,    ALIAS= T32,              FORMAT= F9.1,$
     SEGNAME=PROJKEYS, PARENT=TRS, SEGTYPE=KU
          CRFILE=LENDING, CRKEY=PROJECT,$
     SEGNAME=PROJDATA, PARENT=PROJKEYS, SEGTYPE=KLU
          CRFILE=LENDING,$
     SEGNAME=COFIN, PARENT=PROJKEYS, SEGTYPE=KL
          CRFILE=LENDING,$
     SEGNAME=CNAME, PARENT=PROJKEYS, SEGTYPE=KU
          CRFILE=CFILE, CRKEY=COUNTRY,$
     SEGNAME=SSNAME, PARENT=PROJKEYS, SEGTYPE=KU
          CRFILE=SSFILE, CRKEY=SUBSECTOR,$
     SEGNAME=COAGENT, PARENT=COFIN, SEGTYPE=KU
          CRFILE=COFILE, CRKEY=AGENTCODE,$
```

ANNEX 5

NUMBER OF ERRORS= 0
NUMBER OF SEGMENTS= 11 FIELDS= 63 INDEXES= 5
TOTAL LENGTH OF ALL FIELDS= 434

STRUCTURE OF FOCUS FILE STAFFILE ON 07/17/79 AT 14.23.03



STAFFILE MASTER A

```
FILENAME=STAFFILE,      SUFFIX=FOC,$
     SEGNAME=STAFFSEG, PARENT=, SEGTYPE=S1,$
FIELD= PROJECT,         ALIAS= W10, FIELDTYPE=I, FORMAT= A8,$
     SEGNAME=ACTSEG, PARENT=STAFFSEG,     SEGTYPE=S1,$
FIELD= ACTVTY,          ALIAS= W20, FIELDTYPE=I, FORMAT= A4,$
     SEGNAME=YEARSEG, PARENT=ACTSEG,     SEGTYPE=S1,$
FIELD= TRSFY,           ALIAS= W30, FIELDTYPE=I, FORMAT= I2,$
     SEGNAME=SWKSSEG, PARENT=YEARSEG, SEGTYPE=S2,$
FIELD= DEPTDIV,         ALIAS= W40, FIELDTYPE=I, FORMAT= A5,$
FIELD= STAFFTYPE,       ALIAS= W41, FIELDTYPE=I, FORMAT= A3,$
FIELD= PLANSWKS,        ALIAS= W42,              FORMAT= F9.1,$
FIELD= SWKS,            ALIAS= W43,              FORMAT= F9.1,$
     SEGNAME=MOCNAME, PARENT=SWKSSEG, SEGTYPE=KU
          CRFILE=MOCFILE, CRKEY=DEPTDIV,$
     SEGNAME=PROJKEYS, PARENT=STAFFSEG, SEGTYPE=KU
          CRFILE=LENDING, CRKEY=PROJECT,$
     SEGNAME=PROJDATA, PARENT=PROJKEYS, SEGTYPE=KLU
          CRFILE=LENDING,$
     SEGNAME=COFIN, PARENT=PROJKEYS, SEGTYPE=KL
          CRFILE=LENDING,$
     SEGNAME=CNAME, PARENT=PROJKEYS, SEGTYPE=KU
          CRFILE=CFILE, CRKEY=COUNTRY,$
     SEGNAME=SSNAME, PARENT=PROJKEYS, SEGTYPE=KU
          CRFILE=SSFILE, CRKEY=SUBSECTOR,$
     SEGNAME=COAGENT, PARENT=COFIN, SEGTYPE=KU
          CRFILE=COFILE, CRKEY=AGENTCODE,$
```

ANNEX 6

Focus User Distribution List

Dept	Name	Room #	Ext.	UserCode
P&B	Tony Allen	E610	76275	WZ450101
	Ivy Cheng	E610	76385	WZ450152
	Hywel Davies	E624	76266	
	Lennie Ding	E610	76278	WZ450101
	Nancy Hwang	E657	76281	WZ450102
	Charles McCaskill	E610	76656	WZ450152
	Binod Nayak	E628	74627	
	Mike Pollock	E647	76133	WZ450102
	Vicky Saper	E610	76270	WZ450152
	Harry Singh	E610	76269	WZ450152
CAD	Patty Hamsher	N923	61716	
	Peter Hsueh	N948	61694	
	Steve Liebowitz	N1003	60104	
	Jay Petersen	N1027	61743	
IFC	Jean-Pierre Jacqmotte	D347	72600	WZ013201
	Riyad Said	D348	72528	WZ013201
AEN	Tauheed Ahmad	B617	74127	WZ172051
	Archibald Laing	B602	72647	
ASN	Sue Chou	A516	78157	WZ182051
	Grant Slade	B502	73891	
Health	Suan Raymond	N542	61517	WZ301071
AGR	David Bates	D760	76893	WZ302152
	Guido Deboeck	D710	76882	WZ302151

David Sharp, Madeleine Willoquet (2 copies)

Tymshare, Inc.,
1500 Wilson Blvd,
Suite 200
Arlington, VA. 22209
Tel. (703) 841-3400

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
PROJ/I5=IF STATUS IS ' ' THEN 1 ELSE 0;
END
TABLE FILE LENDING
HEADING CENTER
"TABLE 1 :"
"TOTAL AGRICULTURE AND RURAL DEVELOPMENT LENDING"
"IN FISCAL YEAR &FY"
"_____"
" "
" "
" "
WRITE PROJ AS 'NUMBER OF,AGR AND RD,PROJECTS'
AND TPC AS 'TOTAL,PROJECT,COST(TC),US $MIL'
AND COMPUTE
AVERAGE/D5.1=TPC/PROJ;
AS 'AVERAGE,PROJECT,COSTS'
AND BANK AS '  BANK,LENDING,US $MIL'
AND IDA AS '  IDA,CREDITS,US $MIL'
AND BANKIDA NOPRINT
AND COMPUTE
BKID/F9.1=BANK+IDA;
AS 'TOTAL,BANK AND IDA,LENDING,US $ MIL'
AND COMPUTE
PERCENT/D5.1=BKID/2546.8*100;
AS '    %,BANK AND,IDA,LENDING'
AND COMPUTE
LZTC/D8.1=BKID/TPC*100;
AS 'LENDING,AS % OF TOTAL,PROJECT,COSTS'
BY REGION NOPRINT
BY REGIONNAME AS 'REGION'
ON TABLE SUMMARIZE
ON REGIONNAME SKIP-LINE
IF STATUS IS ' ' OR 'M'
IF LENDINGFY IS &FY
IF SECTOR IS A
END
EOF:
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
RFLG/I1=IF RURALFLAG IS 1 THEN 0 ELSE 1;
AGR.RURAL/A20=IF RFLG IS 0 THEN 'RURAL DEVELOPMENT'
ELSE 'AGRICULTURE DEV.';
PROJ/I5=IF STATUS IS ' ' THEN 1 ELSE 0;
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 2 :"
"RURAL DEVELOPMENT VERSUS AGRICULTURE LENDING"
"IN FISCAL YEAR &FY"
"-----------------------------------------"
" "
" "
" "
WRITE PROJ AS ',NUMBER OF,PROJECTS'
AND  TPC AS 'TOTAL,PROJECT,COSTS(TC)'
AND COMPUTE
AVERAGE/D5.1= TPC/PROJ;
AS 'AVERAGE,PROJECT,COSTS'
AND BANK NOPRINT AND IDA NOPRINT
AND COMPUTE
BKIDA/F9.1=BANK+IDA;
AS 'BANK, AND IDA,LENDING'
ACROSS AGR.RURAL AS ' '
BY REGION NOPRINT
BY REGIONNAME AS 'REGION'
ON TABLE SUMMARIZE
ON REGIONNAME SKIP-LINE
IF STATUS IS ' ' OR 'M'
IF LENDING79 IS 1
IF SECTOR79 IS 1
IF PVERSION IS 5/79
END
EOF:
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
SFLAG/I1=IF SECTOR IS 'A' THEN 1 ELSE 0;
SFLNAME/A25=DECODE SFLAG (1 'AGRICULTURE+RURAL DEV'
0 'OTHER SECTORS');
END
TABLE FILE LENDING.STATUS
HEADING CENTER
'TABLE 3:"
"AGRICULTURE AND RURAL DEVELOPMENT LENDING"
"FROM FISCAL YEAR &FYO TO &FYN"
"-----------------------------------------"
" "
" "
" "
SUM CNT.PROJECT AS ',NUMBER,PROJ.'
AND BANKIDA AS ',LENDING,IN $MIL'
AND COLUMN-TOTAL
ACROSS LENDINGFY AS 'FISCAL YEAR'
BY RURALFLAG NOPRINT
BY RURALFLGNAME AS ' '
ON SFLAG SKIP-LINE
IF LENDINGFY FROM &FYO TO &FYN
IF STATUS IS ' '
END
EOF:
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
BKIDA/F7.1=BANK+IDA;
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 4 :"
"SUB-SECTORIAL DISTRIBUTION OF"
"AGRICULTURE AND RURAL DEVELOPMENT LENDING FROM &FYO TO &FYN"
"-------------------------------------------------------------"
" "
" "
" "
SUM CNT.PROJECT AS 'NO.OF,PROJECTS'
AND BKIDA AS  '  BANK,AND IDA,US $MIL'
ACROSS LENDINGFY AS 'FISCAL YEAR'
BY SUBSECTOR AS 'SUB-,SECTOR'
BY SUBSECNAME AS 'SUBSECTOR,NAME'
ON SUBSECNAME SKIP-LINE
IF LENDINGFY FROM &FYO TO &FYN
IF PVERSION IS 5/79
IF SECTOR IS A
IF STATUS IS ' ' OR 'N'
IF PROJECT NE '7KORAI08'
ON TABLE SUMMARIZE
END
EOF;
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
DB/F7.1=IF BENEFITKEY IS 'RB1' THEN BENEFICIARES ELSE 0;
DBPT/F7.1=IF BENEFITKEY IS 'RB2' THEN BENEFICIARES ELSE 0;
ID/F7.1=IF BENEFITKEY IS 'RB3' THEN BENEFICIARES ELSE 0;
IDPT/F7.1=IF BENEFITKEY IS 'RB4' THEN BENEFICIARES ELSE 0;
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 5 :"
"DIRECT AND INDIRECT BENEFICIARIES OF"
"AGRICULTURE AND RURAL DEVELOPMENT PROJECTS"
"FISCAL YEAR &FY"
"_____"
"IN THOUSANDS OF FAMILIES"
" "
" "
" "
SUM DB AS '    DIRECT,BENEFICIARIES'
AND DBPT AS '    DIRECT,BENEFICIARIES,    IN THE,POVERTY TARGET,    GROUP'
AND COMPUTE
PERCENT/D4.1=DBPT/DB*100;
AS '   % IN THE,POVERTY TARGET,    GROUP'
AND ID AS '    INDIRECT,BENEFICIARIES'
AND IDPT AS '   INDIRECT,BENEFICIARIES,   IN THE,POVERTY TARGET,    GROUP'
AND COMPUTE
PERCENT/D4.1=IDPT/ID*100;
AS '   % IN THE,POVERTY TARGET,    GROUP'
BY REGION NOPRINT
BY REGIONNAME AS 'REGION NAME'
ON TABLE SUMMARIZE
ON REGIONNAME SKIP-LINE
IF PVERSION IS 5/79
IF SECTOR79 IS 1
IF LENDING79 IS 1
END
EOF;
> '
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
TYPES/A1=IF COSTTYPE NE 'A' OR 'C' OR 'G' OR 'K' THEN COSTTYPE ELSE 'Z';
BASE/A1=IF TYPES NE 'Z' OR 'H' THEN  'V' ELSE
IF TYPES EQ 'H' THEN 'W' ELSE 'Z';
TYPENAMES/A20=DECODE TYPES('B 'DIRECTLY PRODUCTIVE'
D 'INFRASTRUCTURE SUP.' E 'SOCIAL SERVICES' F 'ORG. AND MANGEMENT'
H 'CONTINGENCIES');
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 6 :"
"MAJOR COST COMPONENTS IN "
"AGRICULTURE AND RURAL DEVELOPMENT PROJECTS"
"FISCAL YEAR &FY"
"_____"
"IN U.S. $ MILLIONS"
" "
" "
" "
SUM COSTS AS 'US. $MIL'
AND ROW-TOTAL
ACROSS REGION NOPRINT
ACROSS REGIONNAME AS 'REGION'
BY BASE NOPRINT
BY TYPES NOPRINT
BY COSTSORT NOPRINT
BY COSTCATEGORY AS 'COST,CATEGORIES'
ON TYPES SUB-TOTAL
ON BASE SUB-TOTAL
IF STATUS IS ' ' OR 'M'
IF COSTSORT NE 0
IF TYPES EQ 'Z'
IF LENDING79 IS 1
IF SECTOR IS A
END
EOF:
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
CROPFLAG/I1=IF CROPKEY CONTAINS 'NF' OR 'T' THEN 4 ELSE
IF CROPKEY CONTAINS 'O' THEN 3 ELSE
IF CROPKEY CONTAINS 'L' THEN 2 ELSE 1;
USIP/D10.1=(VOLUME/1000)*1978INTPRICE;
CROPFLAGNAME/A20=DECODE CROPFLAG(1 'CEREALS' 2 'LIVESTOCK PROD.'
3 'OILCROPS+OTHER FOOD' 4 'NON FOOD CROPS');
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 7 :"
"ANNUAL INCREMENTAL PRODUCTION EFFECTS (AT FULL DEVELOPMENT)"
"OF AGRICULTURE AND RURAL DEVELOPMENT PROJECTS IN FISCAL YEAR &FY"
"-------------------------------------------------------------------"
SUM VOLUME AS 'TOTAL,VOLUME,IN 000 MT'
AND USIP AS 'TOTAL AT,INT.PRICE,US $MIL'
AND COLUMN-TOTAL
ACROSS REGIONNAME AS 'REGION'
COMPUTE
TOT.VOLUME/D9.1=C1+C3+C5+C7+C9+C11;
TOT.VALUE/D9.1=C2+C4+C6+C8+C10+C12;
AS 'TOTAL.VOLUME,IN 000 MT'
BY CROPFLAGNAME AS 'COMMODITY GROUPS'
BY CROPKEY NOPRINT
BY CROPKEYNAME AS 'CROP NAME'
ON CROPFLAGNAME SUB-TOTAL
ON CROPFLAGNAME FOLD-LINE
IF STATUS IS  ' ' OR 'M'
IF LENDING79 IS 1
IF SECTOR79 IS 1
IF PVERSION IS 5/79
END
EOF:
>
```

```
SET PAUSE=ON
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 8 :"
"ECONOMIC RATES OF RETURN ON"
"AGRICULTURE AND RURAL DEVELOPMENT PROJECTS"
"FISCAL YEAR &FY"
"-----------------------------------------"
" "
" "
" "
COUNT PROJECT AND ROW-TOTAL AND COLUMN-TOTAL
ACROSS ROR AS 'RATES OF RETURN' IN-GROUPS-OF 10
BY REGION NOPRINT
BY REGIONNAME AS 'REGION'
ON REGIONNAME SKIP-LINE
IF STATUS IS ' '
IF LENDING79 IS 1
IF SECTOR79 IS 1
IF FVERSION IS 5/79
END
EOF:
>
```

```
SET PAUSE=ON
DEFINE FILE LENDING ADD
MFLG/D4.0=IF MONITFLAG IS 1 THEN 1 ELSE 0;
MFLGCOST/D10.1= IF COSTKEY IS 'KM5' THEN COSTS ELSE 0;
MCOST/I2=IF MFLGCOST GT 0.0 THEN 1 ELSE 0;
END
TABLE FILE LENDING.STATUS
HEADING CENTER
"TABLE 9 :"
"MONITORING AND EVALUATION IN"
"AGRICULTURE AND RURAL DEVELOPMENT PROJECTS"
"FISCAL YEAR &FY"
"_____"
" "
" "
" "
SUM CNT.PROJECT AS 'TOTAL,NUMBER OF,AGR AND RD,PROJECTS'
AND  MFLG AS 'NUMBER OF,PROJECTS ,WITH M/E'
AND COMPUTE
% WITH/D5.1=MFLG/CNT.PROJECT*100;
AS '% OF PROJECTS,WITH M AND E'
AND MCOST AS 'NUMBER OF,PROJECTS,WITH M/E ,COSTED'
AND COMPUTE
% COSTED/D5.1=MCOST/CNT.PROJECT*100;
AS '% OF PROJECTS,WITH M AND E,COSTED'
AND MFLGCOST AS 'TOTAL COST,OF M/E,COMPONENTS,US $ MIL'
BY REGION NOPRINT
BY REGIONNAME AS 'REGION'
ON REGIONNAME SKIP-LINE
ON TABLE SUMMARIZE
IF STATUS IS ' '
IF LENDING79 IS 1
IF SECTOR79 IS 1
IF FVERSION IS 5/79
END
EOF;
>
```

mis

WHAT IS YOUR FIRST NAME ?

PLEASE REMEMBER TO PUSH R E T U R N AFTER YOU HAVE TYPED IN YOUR NAME

>ted

H E L L O, TED

WELCOME TO

THE WORLD BANK'S

M A N A G E M E N T I N F O R M A T I O N S Y S T E M

AGRICULTURE AND RURAL DEVELOPMENT DEPARTMENT
WORLD BANK

M.I.S. VERSION 08/09/79 AT 10:25:41

WOULD YOU LIKE A BRIEFING TED ?
>yes

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OR SELECT ONE FROM THE LIBRARY --TYPE OLD-- ?

>old

ANNEX 8

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                    REPORT GENERATOR

        FOR LENDING OPERATIONS IN AGRICULTURE AND RURAL DEVELOPMENT

                SELECT FROM ONE OF THE FOLLOWING OPTIONS :

 1. TABLE 1 : TOTAL AGRICULTURE AND RURAL DEVELOPMENT LENDING
 2. TABLE 2 : RURAL DEVELOPMENT VERSUS AGRICULTURE LENDING
 3. TABLE 3 : AGR LENDING VERSUS OTHER SECTORS OVER  FIVE YEARS
 4. TABLE 4 : SUB-SECTORIAL DISTRIBUTION OF AGR LENDING
 5. TABLE 5 : DIRECT AND INDIRECT BENEFICIARIES OF AGR LENDING
 6. TABLE 6 : DISTRIBUTION OF COSTS IN AGR LENDING
 7. TABLE 7 : INCREMENTAL PRODUCTION EFFECTS OF AGR LENDING
 8. TABLE 8 : ECONOMIC RATES OF RETURN OF AGR PROJECTS
 9. TABLE 9 : MONITORING AND EVALUATION IN AGR PROJECTS
10. TERMINATE THIS SESSION

                PLEASE ENTER OPTION NUMBER SELECTED
>6
TYPE FIN AT THE END OF THE REPORT
FT FOCUS:48 ( 30JUL79 RELEASE 3.6M5 ) ON 08/09/79 ...NEW MODIFY ...
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PLEASE SUPPLY VALUES REQUESTED

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 NUMBER OF RECORDS IN TABLE=     169  LINES=     5

 PAUSE.. PLEASE ADJUST PAPER AND ISSUE CARRIAGE RETURN
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TABLE [illegible]
MAJOR COST COMPONENTS OF
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

IN U.S. $ MILLIONS

COST CATEGORIES	REGION EAST AFRICA	WEST AFRICA	EMENA	LAC	EAST ASIA	SOUTH ASIA	TOTAL
IRRIGATION	22.90	16.85	524.30	376.10	354.00	404.40	1698.55
SEASONAL INPUTS	17.60	10.57	2.50	[illegible]	24.60	3.60	94.[illegible]
ON-FARM CROP DEVT	58.00	25.27	200.40	[illegible]	39.[illegible]	29.70	493.[illegible]
CEREAL STORAGE	.	.	127.90	4.50	1.00	.	133.40
CEREAL PROCESSING	.	.12	41.20	4.70	1.00	.	47.02
OTHER CROP STOR/PROC	49.70	.30	85.28	8.50	[illegible]	1.30	147.08
AGRIC MKT DEVT	.50	1.57	.	[illegible]	[illegible]	10.10	17.67
SEASONAL INPUT PROD	3.40	7.54	2.20	.50	5.00	1.40	20.04
LIVESTOCK INPUTS	13.41	12.05	325.60	12.[illegible]	16.70	.80	381.16
O[illegible]CH DEVT	14.60	1.30	400.90	49.30	9.60	.	475.70
LI[illegible]TOCK PROC	.	.19	228.30	.	.	.	228.49
LIVESTOCK MKT DEVT	2.00	.93	1.00	.	.	10.10	14.03
FISHERIES DEVT	.	.	16.40	.	.	7.09	23.49
FISHERIES INDS.	.	.	5.30	.	.	.03	5.33
FORESTRY DEVT	5.20	78.39	17.90	9.40	4.91	22.20	138.00
FORESTRY INDS.	.	.	9.10	14.74	.	.	23.84
AGRICULTURE RESEARCH	11.70	4.33	7.10	6.00	2.00	53.40	84.53
AGRICULTURE EXTENS.	43.80	24.25	6.70	31.50	59.80	69.80	235.85
OTHER	2.90	.	.00	.	.	51.60	54.50
*TOTAL TYPES B	245.71	183.68	2002.08	695.25	522.61	665.52	4314.64
ROADS	24.46	25.00	60.30	36.01	34.80	22.70	203.27
ELECTRIFICATION	.	.45	.	1.84	.	.95	3.24
OTHER	3.50	.	72.10	3.08	77.35	1.20	157.23
SMALL INDUSTRY DEVT	.	.	.	2.70	2.80	.30	5.80
*TOTAL TYPES D	27.96	25.45	132.40	43.63	114.95	25.15	369.54
COMMUNITY DEVT	10.56	5.17	3.20	6.28	11.00	.20	36.41
HEALTH	1.41	.57	.	4.42	2.92	1.75	11.07
ED[illegible]TION	.40	.14	.	8.57	1.33	.90	11.34
[illegible]	2.47	.64	7.00	6.27	2.60	8.90	27.88
NUTRITION	2.10	.	.	.	.	.	2.10
VOCATIONAL TRAINING	.	.07	.	.	.15	.	.22
OTHER	1.10	.17	15.50	.43	.80	.05	18.05
*TOTAL TYPES E	18.04	6.76	25.70	25.97	18.80	11.80	107.07
ADMINISTRATION	43.73	42.45	30.50	45.35	41.79	80.09	283.91
MANAGEMENT TRAINING	3.79	12.46	.82	1.20	.97	5.71	24.95
MONITORING	4.82	6.39	1.30	2.15	.71	3.29	18.66
STUDIES	10.05	13.43	19.50	9.53	35.72	4.51	92.74
OTHER	2.70	.60	135.70	16.22	32.70	10.92	198.84
*TOTAL TYPES F	65.09	75.33	187.82	74.45	111.89	104.52	619.10
*TOTAL BASE V	356.80	291.22	2348.00	839.30	768.25	806.99	5410.52
DUTIES & TAXES	.	.	.	.	.	7.10	7.10
PHYSICAL CONTINGS.	33.52	15.57	113.65	60.36	89.62	59.11	371.83
PRICE CONTINGS.	87.68	96.71	321.25	210.24	206.23	175.40	1097.51
*TOTAL TYPES H	121.20	112.28	434.90	270.60	295.85	241.61	1476.44
*TOTAL BASE W	121.20	112.28	434.90	270.60	295.85	241.61	1476.44
TOTAL	478.00	403.50	2782.90	1109.90	1064.10	1048.60	6886.95

S. Agriculture
Aug 9, 79

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AIMING AGRICULTURAL RESEARCH AT THE NEEDS OF FARMERS*

Donald Winkelmann** and Edgardo Moscardi**

The Problem

Few farmers in developing countries are following the recommendations of researchers and extension workers. Explanations for this difference between practice and recommendations abound.

Some claim that farmers are at fault, arguing that preferences based on traditionalism lead farmers to reject unfamiliar technologies. Some point to extension, arguing that the utility of improved technologies has not been demonstrated to farmers. Others claim that inadequate credit limits farmers' ability to adopt improved technologies. Some emphasize that inputs are not available in a timely way and at appropriate prices. Finally, but less frequently encountered, some contend that recommended technologies are often not appropriate for farmers.

Certainly each of these explanations has been valid for some time and place. However, a number of recent experiences have shown even the poorest farmers -- presumably among the most tradition-bound and usually among those with least access to inputs, information, and markets -- taking up certain technologies while rejecting others. These experiences suggest that more attention should be given to the adequacy of recommended technologies which, in turn, implies that more attention be given to the research systems which develop technologies.

In 1974 CIMMYT's Economics Program initiated its work to identify effective procedures for developing technologies. These procedures are now being tried in several national maize and wheat programs. The following discussion is based on our interpretation of experiences in those programs. The procedures emphasize identifying the production problems of representative farmers and integrating the

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* For the Seminar on Socio-Economic Aspects of Agricultural Research in Developing Countries; 7-11 May 79; Santiago, Chile.

** The authors are economists with the Centro Internacional de Mejoramiento de Maíz y Trigo. The views expressed are not necessarily those of the Centro.

critical dimensions of their decision-making into research on new technologies. This concentration on research does not imply that the other issues mentioned earlier are not important; they are. The intention here is to add emphasis to the importance of the research system, to its procedures and its product.

CIMMYT's interest in such procedures relates directly to the Center's association with national programs. The Center is a producer of intermediate goods -- elements of new technology, training, and procedures -- which national programs apply in forging improved technologies. The procedures in this case relate precisely to the process from which improved technologies emerge.

Characteristics of Useful Technologies

The utility of technologies can be judged from two related perspectives, that of the farmer and that of the larger society. In most cases, to be satisfactory from society's standpoint technologies must be judged useful by farmers.

In most developing countries choices among alternative technologies are left to farmers. By now two related impressions about farmers are widely held: 1) Farmers are purposive in their behavior, seeking to obtain incomes and to avoid risks; they are sensitive to the nuances of their environment; and they are reasonably efficient in managing the resources at their disposal. 2) While farmers' choices among alternative technologies are influenced by a host of variables, physical, biological, and economic forces dominate those choices.

This last impression warrants some amplification. Based on a series of CIMMYT sponsored country studies examining factors influencing the adoption of new maize and wheat technologies (essentially improved varieties and higher rates of fertilizer) it was concluded that:

> "the most persuasive explanation of why some farmers don't adopt new varieties and fertilizer while others do is that the expected increase in yield for some farmers is small or nil, while for others it is significant, due to differences (sometimes subtle) in soils, climate, water availability or other biological factors." (Perrin, et.al. 1976).

These studies and a reading of the earlier experiences of others (e.g. Foster 1962 and Schultz 1964) led to the conclusion that, while other variables might have a limited influence on choices among alternative technologies, income and risk are prominent farmer concerns and these variables are strongly influenced by the natural and economic circumstances of the farmers making the choices. Hence, our emphasis is on these physical, biological, and economic factors.

With this view of farmers, technologies which will be widely used must be consistent with farmers' natural and economic circumstances and must promise improved incomes while keeping risks within reasonable bounds. Technologies which do not meet these standards will not be widely taken up.

The utility of technologies can also be judged from the standpoint of a nation's goals. National decision makers will want patterns of adoption to have consequences, e.g. for income distribution among producers or for the distribution of benefits among consumers, which are in accord with national goals. Given this concern, those responsible for national policy will rarely be indifferent among alternative technologies and, consequently, among alternative lines of research aimed at forging improved technologies.

Procedures for Developing Useful Technologies

Orientation -- Four points should be made before initiating a brief description of our procedures for developing useful technologies.

First, we are concentrating on that research whose results are intended for near or intermediate term application, e.g. fertilizer research or plant breeding. We are less concerned with basic or exploratory research destined to be applicable in the long run. This theme is treated by others at this conference.

Second, the entire process features collaborative research among biological scientists and economists. With farmers sensitive to both natural and economic forces the formulation of technologies requires the same sensitivity. This is not commonly found in a single scientific discipline and even less in a single individual. In the partnership we envision the biological scientist contributes his knowledge of the interaction among plants, insects, and diseases and their environment while the economist brings an awareness of the influence

on farmer decision making of other opportunities for employing his resources and of markets for products and inputs. Beyond this, for issues relevant to policy makers, biological scientists have clearer perceptions of what is feasible through research while economists have the advantage in sorting out the implications of the adoption of alternative technologies. Each, then, contributes elements which are crucial in the formulation of technologies consistent with the needs of representative farmers and with national goals. This collaboration is a hallmark of the procedures being described.

The third point is that we are concerned here with formulating technologies for a single crop or for that crop as part of a mixture. We are not discussing full scale farming systems research.

Finally, the procedures aim at useful but not necessarily "optimal technologies". After all, if each farmer responds to his own natural and economic circumstances then, as these differ among farmers, each could need a different "optimum technology". Satisfying such demands is clearly beyond the capacity of any national research system. In place of "optimums" we seek to forge good approximations, technologies which promise more incomes with acceptable risks to representative farmers. We expect that, after adoption, each farmer will adjust the recommended practices to fit his own particular circumstances. This expectation is entirely consistent with experience, e.g. the increasing use of fertilizer on HYV wheats in India's Punjab and in Mexico's Yaqui Valley. Moreover, this stance relieves the researcher of the costly impression that he must be precise in framing recommendations. The researcher must be precise in his research, of course, but his recommendations are most useful when formulated as good approximations for a large number of potential users.

In brief, then, the procedures rest on collaborative research destined for early application, treat a single crop or mixture, and promise useful but not necessarily "optimal" technologies.

And one additional caveat. We recognize that the effectiveness of agricultural research is limited by shortages of physical and human capital, by nettlesome work rules and by other constraints as well as by the limitations mentioned in our introduction. Even so, research is being done, technologies are being recommended, and farmers are following some recommendations but rejecting most. Hence, it is appropriate to question the paradigms which now

organize applied research and potentially useful to explore new formats for its undertaking.

A distinguishing feature of the process described in the following paragraphs is its emphasis on representative farmers as its primary clients. In our view, for many countries this represents a significant shift in the orientation of agricultural research. And what are the dimensions of this shift?

Integrating Entities -- We believe that much agricultural research in developing countries is concentrated on problems emphasized by professional disciplines and guided by their standards. This is entirely consistent with the training of most active agricultural researchers and with the incentives which orient their efforts. It is also consistent with the paradigms followed in developed countries where technological change has contributed to rapid increases in yields and reductions in production costs.

Why, then, with the system featuring professional peers as primary clients apparently working so well in developed countries, why a shift in emphasis to farmers as primary clients?

Said briefly we believe such a change will make agricultural research in developing countries even more effective. This conviction emerges from our interpretation of the process which links research to practice in developed countries. What is most emphasized in this process is the research of the publically supported research systems. What is too little emphasized is the important role of entities which mediate between this research and the farmer, which integrate research results into effective technologies for farmers.

These mediating entities, e.g. the agri-business complex in some countries, are not well established in developing countries. Moreover, unhappily, the incentives of developing country public institutions do not encourage the researcher to play an integrative role. On the contrary, incentives tend to accent professional contributions -- measured by the timely and lucid publication of research results, the contribution to professional organizations, and the training of others in the litany of the discipline. Furthermore, work rules seemingly conspire against anything done off experiment stations. The result is that research is often more attuned to the problems of the profession than to those of representative farmers and the resulting recommendations are often irrelevant to their needs. It is the absence of this critical activity which underlies our belief that there is scope for making research systems more effective.

We turn now to a brief description of the procedures we have been developing. Their function is to orient the competence of researchers towards the needs of farmers, bridging the gap between research and practice.

Identifying Relevant Farmers -- Natural circumstances in most countries are usually sufficiently variable that several technologies will be needed for a given crop or crop mixture. Moreover, farmers operating under essentially uniform natural circumstances might well confront such differing economic circumstances as to need different technologies for a given crop. It is unlikely that the research resources of a country are sufficient to simultaneously meet all such demands, even for a single crop. The first step, then, in organizing research is to identify the farmers for whom technologies are to be formulated.

The process is expeditiously handled by forming essentially homogeneous environments with similar ecologies, insuring that the crop or mixture in question reacts in roughly the same way and confronts roughly the same challenges in all parts of a particular environment but behaves differently in important ways in other environments. This grouping can usually be done on the basis of the experience of informed biological scientists and economists working with secondary data on area, yields, soils, weather, elevations, and demography, all complemented by the observations of merchants specializing in the crop.

The next step is to roughly characterize the environments in terms of information which may be important to agricultural policy, e.g. area in the crop, production, number of farmers, distribution of farm size, relative importance of the crop, and exportable surpluses. Combining this information with researchers' impressions of the potential for improving technologies is usually sufficient to permit a first rough ordering of the environments in terms of national goals.

In Ecuador this procedure was followed to identify five environments in which farmers produce maize. It was inferred from policy statements that Government was accenting the incomes of low income farmers. For each environment the area in maize, maize as a proportion of total cropland, average farm size, and yields were estimated. Happily, the zone with the smallest farms and the heaviest reliance on maize also had one of the largest areas in maize and biological scientists ranked it high in terms of the potential for forging

improved technologies. This congruence will not always occur so the rankings will often have a degree of arbitrariness, becoming more so as Government goals are less clearly stated and as impressions about research potential are more probabilistic. With this information, a first rough ordering of invironments was made.

Identifying Farmers' Circumstances -- While secondary data are adequate to frame general impressions, they are rarely sufficiently detailed to orient research on improved technology. Such detail requires first hand knowledge of circumstances and problems. We advocate two related sets of activities for acquiring that first hand information. Again, given the scarcity of research resources, these are concentrated on the environments assigned the highest priorities.

The first of the activities is exploratory survey work in the environments for which technology is to be developed. This will include informal but organized discussions with farmers, with merchants, and with others familiar with the environment. The effort involves both discussion and observation and focuses on production practices and problems, markets for production and inputs, and important competing activities.

Secondary data, the knowledge of researchers, and the results of the exploratory survey are then used to describe tentative recommendation domains[1/], i.e. sets of farmers whose natural and economic circumstances are sufficiently similar that a given technology will be relevant to each farmer within a set.

The second activity starts with the same sources of information plus the insights derived from the exploratory survey and proceeds to a formal survey. The information and insights are integrated into questionnaires, which are then administered to a random sample of farmers from each tentative recommendation domain. While each questionnaire is focused on issues critical to the farmer, the farm, and to the crop or crop mixture of primary concern, it also attends other activities -- other crops, livestock, non-agricultural activities, or non-farm activities -- which impinge in important ways on the crop or mixture under study.

These surveys, especially the formal survey, serve to identify characteristics of representative farmers, e.g. farm size, common implements, typical

1/ While some of our colleagues find other phrases more congenial we favor this one. Notice that adjacent farmers need not be in the same domain and that recommendation domains need not be contiguous in space.

rotations, critical periods, and access to inputs. They permit description of practices currently employed -- levels, types and dates associated with each activity -- by representative farmers. They provide information for establishing the representative farmer's perception of major problems affecting the cropor mixture under study. The survey data also allows for refinement of the description of recommendation domains.

The procedure starts, then, by grouping farmers into essentially homogeneous natural environments, orders these environments in terms of national goals, assesses farmers' circumstances, establishes groups of farmers in terms of natural and economic characteristics and of national goals, and makes specific the circumstances of representative farmers for each important group.

Returning to the example of Ecuador, surveys there indicated that the environment assigned the highest priority contained three different sets of farmers based on natural factors. The three emerged from insect patterns and access to irrigation. The insect patterns, in turn, were closely related to altitude. Some differences in economic circumstances appeared, e.g. farm size and access to inputs. For virtually all farmers in each group these differences were slight. The remaining farmers were small in number and in the proportion of total area given over to maize. So no additional re-recommendation domains were formed because of economic circumstances. For each domain the survey data were used to characterize the circumstances of the representative farmer.

While data on farmer circumstances is gathered primarily to orient research, experience shows that an immediate sifting of the information for policy implications might also be profitable. For example, one maize study showed that a supposedly effective system for distributing inputs was falling far short of meeting farmer requirements for insecticides. The problem uncovered, policy makers could move to clear it up.

The perceptions of farmers and merchants, the knowledge of scientists, and the information derived from surveys is then combined to reveal factors significantly limiting the production of representative farmers. As with the earlier activities, data analysis requires the joint participation of biological

scientists and economists. Each, again, brings specialized skills and sensitivities to the data and these contribute to the identification of significant problems and to establishing the lines of work which might lead to their resolution. The research itself is undertaken on experiment stations and on the fields of representative farmers (see Figure 1).

Organizing Experimentation -- Some of the limitations identified require research under carefully controlled conditions. This is usually best done on experiment stations. Its benefits often will not be realized in the near term and its results must be tested under the conditions of relevant representative farmers.

The surveys also orient on-farm experimentation. This activity has a featured role in the process because the natural conditions of experiment stations often depart markedly from those of representative farmers. The first step involves examining existing solutions to the problems identified, carefully assessing the adequacy of such solutions, and modifying proposed solutions in the light of findings on the fields of representative farmers.

Survey work in one Andean region of Peru showed the importance of leaf diseases in maize. The importance of the disease established, maize breeders began to screen their own material and sought promising materials from others to screen for resistance to this disease. In another Andean region survey work uncovered a farmer demand for a shorter season variety with good stalk strength. Maize breeders are now recombining shorter season material with material having good stalk strength and proper grain type. And why good stalk strength? Because surveys disclosed that the representative farmer grows climbing beans with his maize and on-farm experiments showed that existing short season varieties were unable to carry the weight of the beans. These problems and opportunities were uncovered through on-farm research involving surveys and experimentation.

On-Farm Experimentation -- The on-farm trials are initiated with best-bet strategies based on the experience of researchers and farmers' perceptions. At each critical period in the life of the crop or mixture farmers and researchers come together around the crop to assess the adequacy of the strategies. Information from the trials flows to the experiment station, signaling new problems, and to trials in succeeding years (see Figure 2). Each year information from experiment stations trials is assessed for its relevance to the problems judged most critical.

Three classes of on-farm trials are advocated -- yes-no trials, how much trials, and verification trials. The yes-no trials are designed to look at major effects and first order interactions of the factors thought to be most critical in limiting production. Factorial designs are the mainstay of these trials and these feature two levels of the inputs or practices being examined, one at current farmer levels and the other at a significantly higher level. The how-much trials are designed to identify levels at which income seeking, risk averting farmers might want to employ inputs or practices detected as limiting in the yes-no trials.

In developing improved technologies there are always questions regarding how many factors can be changed at one time, to what degree input use can be changed, and at what level those factors not being changed should be set. For on-farm research, we advocate that attention be concentrated on only three or four factors at a time. Most evidence is that farmers tend to make but a few changes at a time, concentrating on those with the highest payoffs, so research can be concentrated on a limited number of factors rather than aiming at all potential changes in one fell swope. Regarding the levels of input use, profit and risk considerations require that rates of return on purchased inputs be quite high, i.e. probably higher than the apparent cost of capital, and this could suggest less intensive use than might be thought desirable by yield maximizing biologists or profit maximizing economists. How much less can be approximated with farmers during research and verification trials.

Finally, we believe that the non-experimental factors, those not part of the yes-no trials, are best set to match practices followed by representative farmers. By definition these variables are not important in determining yields or costs -- else they would be among the experimental variables -- so they can be set at low cost rather than at high cost levels.

Each year best-bet strategies are reformulated in terms of the results of the previous year and the impressions of all participants in the trials (see Figures 1 and 2). They are also modified to incorporate findings from experiment station research. Once farmers and researcher are convinced that an appropriate strategy is available, i.e. one consistent with farmers' circumstances and promising significant improvement in income at acceptable risk, the strategy is verified on a larger number of representative sites. Once verified, recommendations are made.

Notice that the process accents immediacy with improved technologies available in the near or immediate term. If all goes well -- if the proper elements have been integrated in the research -- the recommended technologies will be widely and rapidly diffused. This occurs precisely because they have been deliberately tailored to fit the needs of representative farmers.

Over time, individual farmers will adjust the recommendations in the light of their particular circumstances. Experiment station results, e.g. new varieties, will be available for testing under farmers' circumstances and incorporated in new best-bet strategies. In the longer run researchers will turn their attention to other environments or to other problems of lesser importance in the same environment. The process, then, provides for continuing improvements in recommended technologies as both farmers and researchers -- from on-farm trials and from experiment stations -- apply new experience and information to farmer problems.

Incentives and Structure--The process described here rests squarely on bringing publically sponsored researchers together around the problems of representative farmers. By basing their research on representative natural and economic circumstances, they will play that important integrative role. In many cases implementing such research will require changes in incentives and in work rules. For at least some researchers, incentives must favor contributions to representative farmers and to production; work rules must facilitate on-farm efforts.

Before making these changes, of course, the utility of the procedures themselves must be demonstrated. We believe that favorable evidence is accumulating rapidly. Already several national programs are recasting research in terms of the earlier discussion and their on-farm activities are showing new solutions for the problems of representative farmers. These solutions are moving towards verification. We have yet to see whether they give rise to recommendations suitable for the target groups of farmers but we are optimistic about developments.

Summary

The preceding paragraphs describe a procedure for developing improved technologies. Farmers are at its core as its primary clients. The procedure

focuses on ascertaining relevant farmer circumstances and integrating these into research aimed at developing improved technologies. It rests on collaboration among farmers, biological scientists, and economists so that the special experience and skill of each can influence the orientation of research. On-farm trials, under the circumstances of representative farmers and with feed-back from year to year and with experiment station research, play a featured role. The process itself is non-perfectabilitarian in that it does not envision developing "perfect" technologies. Rather it systematically focuses on major constraints to production, integrates natural and economic circumstances of representative farmers, provides for continuing and immediate improvement through research, and counts on individual farmers to make adjustments in terms of their own special circumstances.

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Schultz, T.W., 1964, Transforming Traditional Agriculture, New Haven: Yale University Press.

Figure 1: Overview of an integrated on-farm research program.

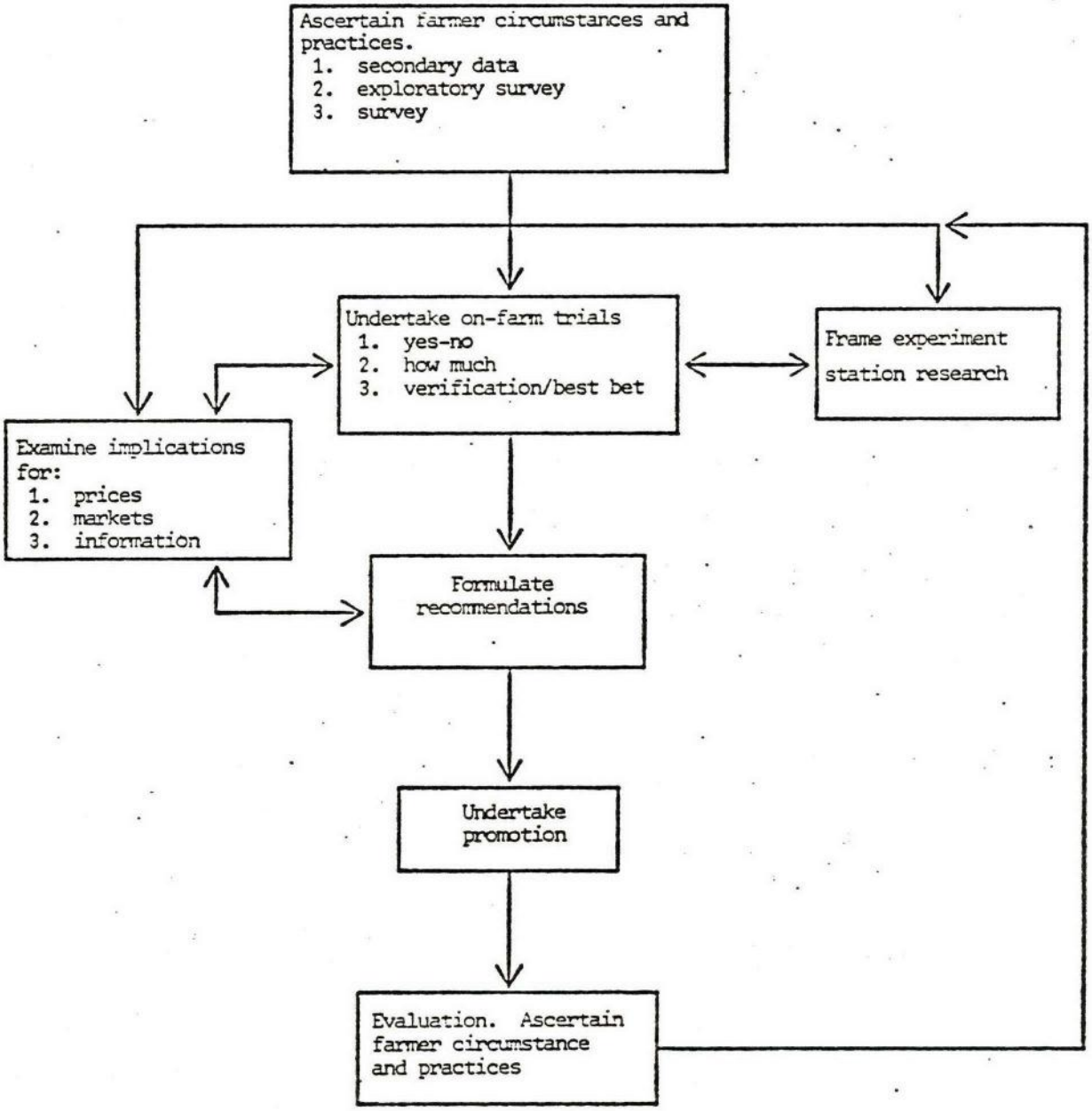
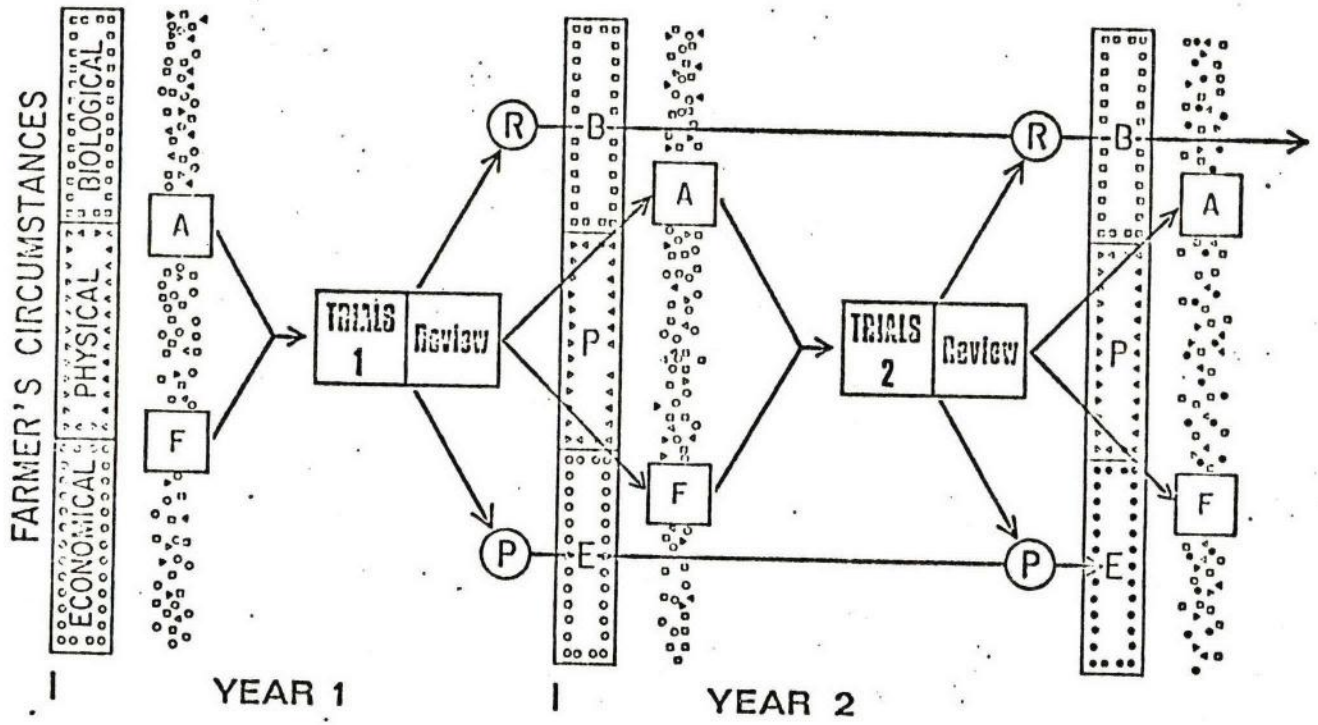


Figure 2. On-farm trials through time and under farmer circumstances.



In the first phase the farmer (Γ) and the research team (A) come together in the farmer's environment, ascertain important problems, and identify potential solutions. These are tried out as "Best Bets" in a first set of on-farm experiments. The trials are monitored by (F) and (A). (A) and (Γ) use information to adjust subsequent trials. Information goes also to station researchers (R) and to policy makers (P), who organize their work to alter the farmers' environment. (This is exemplified by a change in the economic circumstances after Year Two, e.g. different prices, giving rise to a new environment in Year 3). Interaction continues until a technology judged suitable for verification is identified.

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Distribution Below

DATE: August 6, 1979

FROM: Montague Yudelman, AGR

SUBJECT: World Conference on Agrarian Reform and Rural Development: Speech of Mr. Shahid Husain, as Leader of the Bank's Delegation

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TDavis/cc

WORLD CONFERENCE ON AGRARIAN REFORM AND RURAL DEVELOPMENT

Rome - 12 - 20 July 1979

Statement by
Mr. Shahid Husain,
Vice-President of the World Bank

During this last quarter of the 20th century, people and governments in developing countries face many issues, some old and some new. Some of these are inherent to the problems of poverty and development. Some emerge from the realization that the development of the past has barely touched the mass of humanity. The problems of rural poverty, unemployment and inequity are associated with both. They have been an integral part of the scenario of underdevelopment. They are also telling evidence of the inadequacy of our efforts to increase the economic and social opportunities for and the conditions of living of the majority of people in the developing countries.

Before saying something on the subject of this Conference and on the World Bank's program for rural development, let me briefly examine where the developing countries stand today. Looking at the development record of the third quarter of the 20th century, some major questions arise. While there has been an impressive increase in production and income in the developing world in general, this has been less so among the low income countries and among the poorer segments of the population within countries. Thus, from 1950 to 1975, in the developing countries as a whole, the gross national product per capita increased by 3.4 percent per annum but in low income countries the increase was a mere 1.1 percent. About 800 million people, i.e. 40 percent of the population of developing countries, are still living in absolute poverty, about 600 million of them in the rural areas. During the same period, agriculture production in the low income countries failed to keep pace with population growth. In most developing societies unemployment, rural poverty and landlessness are more serious problems today than they were in the middle of the century. All this, notwithstanding the massive effort at development that developing countries have undertaken and international development agencies have been assisting.

The fundamental challenge facing the developing countries, therefore, is to redirect their efforts so that poverty, malnutrition and unemployment within their societies can be tackled in the context of growing production. It is in this context that each country has to view its policies and programs for rural development, which will inevitably involve substantial changes and reforms in the structures of agrarian societies.

The causes of rural poverty are complex. They are historical, economic, political and social. What is certain is that institutional and economic arrangements can be changed and human and financial resources can

be mobilized so that the poor, unemployed and unproductive can participate fully in economic life and make a contribution to development. Most people in developing countries live in rural areas. Their underemployment is the underutilization of every country's most important resource. It is not possible to conceive of a development process which would be tenable and yet would leave the mass of the rural poor still poor and underemployed. Such a process would corrode the very social and political foundations of economic development.

We all recognize that the landless and other poor people in the rural communities face immense difficulties in countries where there is substantial concentration of landholdings among a relatively small number of people. The tenants, the smaller peasants and the landless are liable to suffer from inadequate influence in the policies and affairs of governments. Very often their benefits from public institutions and public programs are disproportionately low. If agricultural production in developing countries is to increase more rapidly than in the past and if simultaneously the problems of poverty are to be tackled, countries will have to find a way to ensure a better utilization and distribution of land than prevails, improvement in land tenure arrangements and better access of the poor to extension, water, credit and other services. Rural infrastructure will have to be improved and new opportunities will have to be developed for off-farm employment. In sum, there will be need for a coordinated set of government policies directed at the rural areas.

The late Wolf Ladejinsky spent most of his life examining and reflecting on the basic conditions causing rural poverty, largely in the Asian countries. During the later part of his life, when he honored us by serving in our field offices in Asia, he spoke fervently of the urgent need for the redistribution of land and improved tenurial conditions together with parallel economic measures to make such a restructuring of rural societies viable and sustainable.

Some of his writings have been published by the Bank in a book under the title: "Agrarian Reform as Unfinished Business" and I would like to quote from him:

> "No single panacea will deal with all these issues effectively. In conditions of rural poverty even redistribution of the land will not suffice unless it is accompanied by the necessary means to work and improve the land. It follows that countries that carry out land redistribution programs must make great efforts to increase agricultural investment, particularly if their rate of population increase is fast. The economic opportunity and psychological incentives that come with possession of the land or security of tenure must go hand in hand with a host of other developmental measures."

Ultimately most governments will realize the urgency of such broad reforms. Because of their inherent link with economic, political and social issues, each government will decide the nature and the timing of

such measures. International agencies can, however, provide a supportive role once the basic policy decisions have been made at the national level. This has led the World Bank to adopt, as part of its policies, the willingness to finance in various ways the implementation of agrarian reforms. Several of our recent projects in countries such as the Philippines, Bangladesh, Mexico, Brazil and Ethiopia have included support of tenancy reform, land purchase and equitable agrarian systems.

We know that at the present rate of population growth millions of people are added each year to the ranks of the rural poor. Last year's World Development Report portrayed the depressing prospects for this group. Under the prevailing policies, by the year 2000 the developing countries would still have 600 million people in absolute poverty, more than two-thirds of them in the rural areas. Clearly, this scenario is unacceptable to all of us. Every country will need to develop coherent and coordinated measures to alleviate inequity, unemployment and poverty in the rural areas. Accomplishing the structural changes that will be required will be a long and hard struggle. More attention, more resources, and a more concerted search for knowledge will be required of national governments and international agencies.

Speaking to the Governors of the World Bank at Nairobi in 1973, the President of the World Bank drew attention to the problems of rural poverty. The subsequent year's Policy Paper on Rural Development outlined the World Bank's program for assisting developing countries in combating rural poverty. The main points were:

1. Lending for agriculture and rural development during fiscal 1975-79 would be approximately $7 billion for projects with total costs estimated at $15 billion.

2. Half of this lending would be for poverty-oriented rural development projects.

3. New style projects would be emphasized, so that:

   (a) they would benefit large numbers of rural poor;
   (b) they would be comprehensive in approach; and
   (c) they would have low cost per beneficiary so as to be replicable on a larger scale.

4. Agricultural and rural development lending over this five-year period would reach a total rural population of 100 million, of whom 60 million would be in the poverty target group.

Today we are able to measure actual progress against these earlier goals. Over the last five years the World Bank Group has invested more than $11 billion in about 400 agriculture and rural development projects, about four times the amount in the previous five years. These projects constitute about one-third of our total lending and now are the single most

important area of our emphasis. Bank Group loans were associated with about $30 billion of investment in these projects. Our preliminary estimate is that these projects would benefit over 120 million people in 76 countries; of these, two-thirds are among the rural target group. We fully expect to continue this emphasis on growth in rural incomes and employment and particularly for the rural poor.

The magnitude of the effort requires improved modalities for coordination and interdependence. Agencies of the U.N. system have a crucial role to play with respect to resources and expertise. Apart from financing projects, the World Bank has participated actively in efforts to finance international agricultural research. We have concluded cooperative agreements with other agencies to promote project formulation and preparation, the single largest being the one with FAO's Investment Centre, which has served the international community well over the last 14 years. Presently, it helps governments prepare about one-third of the agriculture and rural development projects we finance.

The Bank is conscious that effective coordination of rural development effort among U.N. agencies would contribute to the effectiveness of our expanded programs. In 1975, at the request of the U.N. Administrative Committee on Coordination, the Bank acted as lead agency for its Task Force on Rural Development and helped carry out an interagency study on how to improve the efforts and coordination of rural development projects and programs of the U.N. system. The study reached four principal conclusions and these were:

1. Each agency should explicitly approve a poverty-oriented rural development policy and this should be reflected in its allocation of resources.

2. Each agency should set up a system to monitor its activities in order to assure effective implementation of its policy.

3. The focus for optimizing the application of resources of the U.N. agencies should be at the national or field levels.

4. In order to test this approach, a special exercise should be carried out under ACC auspices in a few selected countries.

The ECOSOC accepted these and other related recommendations and requested the ACC Task Force to continue as an important interagency mechanism for collaboration on rural development. Under FAO as the present lead agency we hope that the Task Force can give the highest priority to pursuing an effective implementation and evaluation of the special exercises for six countries initiated last year. This may help all agencies in the U.N. system to improve the coordination of these field activities.

In recent years several other initiatives have been taken to make the U.N. system more effective in alleviating massive poverty, not only under the auspices of the World Food Council and IFAD, but also through a series of measures taken within and among other U.N. agencies. It would be only prudent that any further initiatives to establish new machineries for interagency coordination or monitoring of rural development activities are contemplated only after a careful examination of their operational usefulness. We should also verify that there is no unintended overlapping of new initiatives with similar ongoing activities, unless these are explicitly considered unworthy of further support.

The Bank's experience with rural development projects is brief, yet we have been able to draw some lessons from these. I will now summarize some of these.

Problems of rural employment and poverty can be tackled only in the context of growing production and incomes. While rural development projects and programs should combine a variety of economic and social considerations, emphasis on agriculture, and particularly food production, is essential. Economic and social objectives are best served by increasing the productivity of small farmers and other low income groups in rural areas. This is best done by projects and programs designed specifically for this purpose. The most successful rural development projects have been in areas under irrigation or under high rainfall. There has been lesser success in projects in rainfed tropical areas, particularly with respect to annual crops.

There is a major gap in knowledge and technology on rainfed tropical agriculture. International agricultural research is just about beginning to address this issue but is still inadequate, since the bulk of the rural poor lives under such conditions. This is particularly true of Africa.

People's attitudes and institutions are more difficult to change than technology. Besides a viable technological base, projects for the poor may require particular emphasis on institutional reform, staff training and motivation, farmer and community training, institutional reform and special action to prevent discrimination against the smaller and poorer rural families. Equity in treatment is difficult to achieve in societies where there are great disparities in land-holdings and where land and water are equated with political power. In some projects where improved technology has been provided to help tenants improve their production, tenants have been displaced or much of the benefits have been captured by landlords. If technological packages are to have any significant impact over a period of time, they will have to be accompanied by management reform and institutional change, including the patterns of land-holding, tenure and tenancy.

Such projects have to be implemented in an environment of sound policies and programs. Projects are no substitute for policy changes and institutional reform. Evaluation of several recent projects in Africa, Asia and Latin America indicates that farmers must be provided adequate incentives to produce and that the capacity of rural operating agencies must be substantially improved.

To conclude, Mr. Chairman, the World Bank fully intends to continue its efforts at helping its member governments provide for rural change. Clearly, external capital and technical cooperation is but one element in the overall effort. The fundamental decisions and policies will have to be taken by each country. Financial resources are important but these will be fully productive only if they are accompanied by coordinated programs and policies and institutional change, some of them far-reaching and having widespread repercussions. In evaluating these issues, policy makers will have to ask whether the risks associated with institutional change and hard policy decisions are greater than the threat of continuing mass poverty and underemployment in the vast majority of rural areas.

5 - RURAL DEVELOP.

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

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TDavis/cc

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Rome - 12 - 20 July 1979

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Such projects have to be implemented in an environment of sound policies and programs. Projects are no substitute for policy changes and institutional reform. Evaluation of several recent projects in Africa, Asia and Latin America indicates that farmers must be provided adequate incentives to produce and that the capacity of rural operating agencies must be substantially improved.

To conclude, Mr. Chairman, the World Bank fully intends to continue its efforts at helping its member governments provide for rural change. Clearly, external capital and technical cooperation is but one element in the overall effort. The fundamental decisions and policies will have to be taken by each country. Financial resources are important but these will be fully productive only if they are accompanied by coordinated programs and policies and institutional change, some of them far-reaching and having widespread repercussions. In evaluating these issues, policy makers will have to ask whether the risks associated with institutional change and hard policy decisions are greater than the threat of continuing mass poverty and underemployment in the vast majority of rural areas.

S. Agriculture

Mr. J.D. Von Pischke, AGREP

August 6, 1979

G.F. Donaldson, Chief, AGREP

Terms of Reference - Second International Conference on Rural Finance Research Issues - 17th International Conference of Agricultural Economists

1. Proceed to Calgary, Alberta, to attend the Second International Conference on Rural Finance Research Issues from August 29 to September 1, 1979, and to present at that conference your paper undertaken jointly with Prof. Dale Adams, entitled, "Fungibility and the Design and Evaluation of Agricultural Credit Projects."

2. Also attend the 17th International Conference of Agricultural Economists in Banff, September 3 - 12. Serve as a resource person in the discussion group concerned with agricultural credit policy, as requested by the chairman of that group.

3. Upon your return file a back to office report summarizing the main points of these conferences.

CIMMYT
S. Agriculture

August 3, 1979

Dr. Don L. Winkelmann
International Maize and Wheat Improvement Center
Apartado Postal 6-641
Londres 40, Mexico 6, D.F.
Mexico

Dear Don:

I understand that Don Pickering spoke to you about the possibility of my spending a day or two at CIMMYT during my visit to Mexico in mid-October. I would not want my visit to CIMMYT to be burdensome to anyone there, but would appreciate the opportunity to see something of the overall program at the Center and in particular learn more of the work of your group as it pertains to the policy seminars and technology diffusion. I would reciprocate at least in part by offering to discuss with those you consider appropriate the World Bank Policy Paper on Agricultural Research which is now in draft form.

Please let me know if something like this could be set up. I have commitments elsewhere in Mexico on October 18 and would suggest sometime around October 15 - 16 for the CIMMYT visit.

Sincerely,

J. James Goering
Senior Agricultural Economist
Economics and Policy Division

Bcc: Messrs. D. Pickering AGR
G. Donaldson, AGREP

S-Agric + R.D.

See Distribution Below

August 1, 1979

T. L. Martin, EAPNA

Animal Production

I have received the enclosed paper by Dr. T. R. Preston from Dr. Halpin of the UK Ministry of Overseas Development. The paper may be of interest to you.

cc: Messrs. Sutherland, Meyn, Peberdy, Schaefer-Kehnert, Frank Thomas, Ramasubbu, Haasjes, Greening, Otten;
Brumby (New Delhi), Wilson, Egerton, Nissen, Blanc;
Dewar (RMEA), Pease, Worker, Khouri, Ashworth

Attachment

TLM:el

TROPICAL ANIMAL PRODUCTION: A NEW APPROACH TO RESEARCH, TEACHING AND DEVELOPMENT (WITH PARTICULAR REFERENCE TO ODM PROJECTS IN MEXICO AND DOMINICAN REPUBLIC)

T R Preston D.Sc Ph.D.

1.0 GENERAL APPROACH

1.1 Use of local resources

The great asset of the tropics is the potential for biomass production and year-round plant growth. With photosynthetic efficiencies between 1 and 1.6 per cent, annual dry matter yields (average to good conditions) can average from 60 to 90 t/ha; comparable data for temperate regions are 0.6–0.8 per cent efficiency and 20–30 t/ha. Minimum temperatures in the tropics rarely fall below 20°C, and rainfall is usually adequate even though it is often unevenly distributed with wet and dry seasons. There is thus the possibility of producing feed all the year round and eliminating costly conservation procedures. It is also easier to protect animals against heat than against cold, so that housing is less expensive.

Most high-producing tropical crops grow tall and as a result an appreciable amount of the biomass is present as slowly degradable cell-wall material. However, many crops have the ability to store readily available sources of energy, eg the sugar in sugar cane, starch in the fruit or root of cassava, bananas and sweet potatoes, or have dual-purpose characteristics, such as the leucaena tree which produces wood as well as high-protein forage.

The majority of tropical crops and by-products are characterized by having their carbohydrate in the form of cell-wall components or soluble sugars, and they are usually low in protein. This offers the opportunity to use non-protein nitrogen (urea), but the combination of these two types of nutrients puts major emphasis on the process of rumen fermentation as a means of utilizing them for productive purposes in the animal. In this respect tropical feeds are quite distinct from those in temperate countries, where forages tend to be of high quality (because of slower rates of growth and therefore higher ratios of leaf to stem) and where starch is readily available in cereal grains and their by-products.

Recent research (mostly carried out by the Mexican group when the project started in Chetumal) shows that feeds which can only be digested by fermentation processes, even if they are of high digestibility and are supplemented with urea and minerals, will support little more than maintenance. In this situation, acceptable levels of animal productivity can only be achieved by providing complementary true protein which will by-pass the rumen and thus escape being fermented. For certain feeds, such as sugar cane, which are relatively high in fibre, it may even be necessary to supply by-pass energy as well. But since by-pass nutrients are expensive, it is generally economically preferable to accept more moderate levels of individual animal productivity which can be achieved with minimum supplementation. The real potential of the tropics is not in individual animal productivity but in the possibility of high production per unit area.

Moreover, most tropical countries, other than the oil producers, have balance-of-payments problems, and this makes it desirable to develop systems of production which minimize imported feeds and fuel and maximize the use of local resources.

1.2 Integration of livestock with agriculture

In many tropical countries there is increasing competition for land use between crops for export (to earn foreign exchange) and for domestic consumption, on the one hand, and traditional pasture-based animal production systems, on the other. The latter systems are becoming increasingly difficult to justify and the perspectives are that animal production in many tropical regions will have to be based increasingly on the use of the by-products from export and food crops.

Any crop that is grown specifically for animal feeding must either be extremely high yielding (in biomass) or have dual-purpose uses (eg protection against erosion or a source of fuel or fibre).

1.3 Systems approach

A philosophy of accepting less than maximum performance in any one line of production requires as a corollary a systems approach in which materials previously considered as wastes are harnessed as income-producing or input-saving products in a multi-purpose production scheme. This idea has become particularly relevant with the energy crisis, since cattle wastes can contribute plant nutrients (substituting fertilizers), energy (from biogas) and organic matter which is at a premium in many tropical soils.

Efficient recycling of wastes requires close integration with crop production and is favoured by confinement systems which in turn offer the most efficient means of harvesting biomass - as opposed to grazing.

Integrated multi-purpose schemes do not necessarily depend on economies of scale. On the contrary, such schemes are ideal ways of ensuring the viability of even small-scale projects, because of the high degree of intensification and the recycling which saves on purchased inputs. Finally, multi-purpose systems offer considerable flexibility, as obviously by having a number of products for sale (eg milk, beef and fertilizer and even fuel) there is protection against market fluctuations in the value of any one of them.

1.4 Research and development

One reason for the slow progress in the development of viable animal production systems in the tropics has been the lack of both basic and applied research. The problem is compounded by the fact that the feeds available in the tropics differ radically in composition from those in temperate countries; the integrated systems approach also contrasts markedly with the specialization which is now the hallmark of animal production in developed temperate countries. The consequences are that results of animal production research in these countries have little application in the tropics.

Instead of transfer of technology from temperate to tropical countries, what is required is the development of appropriate feeds and production systems based on local resources. This needs a concentrated research effort both at the basic and applied levels in order to understand the constraints attached to tropical feeds and to devise methods of overcoming them, thus unlocking the vast potential for animal production that exists in the tropical regions.

1.5 Training

What has been said about research applies also to training. The present practice of sending technicians from the tropics to be trained in developed temperate countries is

inappropriate because it trains them in production systems which are often completely unsuited to their home countries. There are also the social problems caused by exposure to living and working conditions of a degree of sophistication far above that of their own countries. When the student returns home, it is frequently to an elitist desk job in the capital rather than to tackle important, although arduous, problems in the field.

1.6 Transfer of technology

Although transfer of technology from temperate to tropical regions may not be appropriate, there is a powerful argument in favour of transfer between tropical countries. In fact, the concept of promoting centres of excellence (for research and training) in the tropical regions presupposes that these centres will act as focal points from which technology can be disseminated to other tropical countries with similar conditions and resources. Only in this way can the expense of building up basic research facilities be justified.

1.7 Technical assistance

The most controversial aspect of technical assistance is the expatriate adviser. One problem is to ensure technical and scientific excellence - which is difficult for 'career' experts with few opportunities for retraining and often working in isolation under difficult conditions. There are also the socio-economic stresses of living and working in a developing country which often reduce the effectiveness of an adviser.

In order to ensure vigorous day-to-day execution of a project, coordination with national counterparts, and dispensing of agency funds there is clearly a role for some full-time advisers. However, in most other aspects of technical assistance, the true specialist - the internationally recognized scientist or consultant - is being increasingly sought after by national counterparts who are anxious to have the best advice and show an increasing awareness of not having to tolerate mediocrity.

The effectiveness of consultants does depend, however, on clear identification of the problem to be investigated and the existence of the necessary infrastructure.

1.8 Development at Regional and International Levels

The arguments presented in the preceding sections have evolved in the course of developing animal production projects not only in Mexico and the Dominican Republic but in Mauritius and the Seychelles where similar projects are on-going.

It is believed that the general philosophy outlined in this report could be applied to almost all tropical regions throughout the developing world. Confidence in this belief stems from the interest generated in the Caribbean/Central American region for the setting up of animal production projects which aim to demonstrate the economic feasibility of the systems that have been developed so far.

For example, arising from the work in Mexico and the Dominican Republic, projects have been prepared or are on-going in the following countries in the Caribbean/Central American region.

a. St Lucia A 1,000 head nucleus feed-lot unit and six satellite family farms are being constructed to serve as models for dual purpose milk/beef production with recycling of wastes for biogas and fertilizer production. The budget is of the order of US$1m and is being financed by the European Development Fund (EDF). The project

started in January 1979 and the expatriate manager (Mr David Ffoulkes) spent one year in the Dominican project to be trained for this assignment.

b. Guatemala A feed-lot of 1,500 head capacity is using sugar cane and its by-products, supplemented with cassava and leucaena forage, for beef production. The animals are fully confined and effluent is recycled as a fertilizer for intensively grazed pastures. This project has been on-going since 1976 and is the concern of a private company.

c. St Kitts/Nevis An integrated dual purpose cattle unit (600 head) will be linked with a 50 ha food crop farm using sugar cane by-products for cattle feed and the effluent for fertilization of the food crops. This is the nucleus unit; it will be associated with small farm schemes using the same technology situated in the nearby island of Nevis. This project was identified early in 1979 and it is expected to be initiated in early 1980. Financing will be by the EDF. A pre-project phase will begin in July of this year to demonstrate the use of molasses and leucaena on the ministry livestock farms on both St Kitts and Nevis, or Costa Rica. A series of large scale projects (1,000 head each) is being set up by a group of private investors but with Government backing. These units will be fully integrated and similar in nature to the project in St Lucia in that they will produce milk and beef from dual-purpose cattle with associated recycling of wastes for biogas and fertilizer. The different projects will be determined by the major feed inputs, which are expected to be

i. molasses and cassava forage

ii. sugar cane and leucaena

iii. reject banana fruit, banana forage and leucaena

These projects have been identified and the investment proposals are now being prepared.

d. El Salvador This project is concerned with the transfer of the technology developed in the Mexican and Dominican centres. It is being carried out in a collaborative effort between the Banco de Fomento Agropecuario, the National University, the Ministry of Agriculture and FAO. The aim is to establish:

i. intensive units for the fattening of male calves from dairy herds using molasses and cassava forage (or leucaena). These calves are presently slaughtered at birth and represent an important economic and biological loss;

ii. demonstration of the advantages of recycling waste from cattle units for the production of biogas and fertilizer;

iii. evaluation of dual purpose milking/suckling systems for milk and beef production;

iv. joint training programmes at the MSc level in conjunction with the University of Yucatan, Mexico.

e. Colombia A project has been identified for the establishment of an integrated dual purpose milk/beef production unit, initially of 1,000 head. The system will incorporate full confinement of the animals and recycling of the wastes using sugar cane by-products as the principal feed ingredient. The project is being prepared for a private investor who is at present the major shareholder in a sugar factory and estate in Palmira Calle. The preliminary phase of this project began in February 1979.

f. Venezuela A request has been received from the University of Maracaibo to evaluate their teaching and research programme in the field of tropical animal science. This will begin in December 1979.

Outside the Caribbean/Central American region it is relevant to mention two on-going projects which started in 1972.

g. Mauritius This is a UNDP financed project executed by the FAO and carried out in collaboration with the Ministry of Agriculture. Research and development have been carried out on the utilisation of sugar cane by-products as the principal feed for dual-purpose cattle producing milk and beef in full confinement. Associated with this project has been the training (at MSc level) of three Mauritian students on the basis of the philosophy of carrying out the experimental work in their own countries (and therefore on relevant problems), but with the theoretical component being imparted at the University of Reading.

h. Seychelles This project is also financed by UNDP and executed by FAO, but there has been close collaboration with the ODM who have provided important inputs to the project, initially in the form of a technical co-operation officer and subsequently by direct financial aid. The objective has been to develop viable small-scale family farming systems with close integration between cattle and crops. The original work on the use of banana forage as a cattle feed was carried out in this project, as was the demonstration of the value of recycled fertilizer in what are considered to be soils of very low inherent fertility.

2.0 ACHIEVEMENTS

2.1 Research

2.1.1 Scientific findings

The results of the research carried out at the centre in the University of Yucatan and in the related unit in the Dominican Republic are published in Tropical Animal Production (see section 2.4). The more important findings that have emerged from the research programme can be summarised as follows:

Sugar Cane

1. Chopped whole sugar cane supplemented only with minerals is an effective dry season feed for pregnant and milking beef cows and for maintenance of any class of cattle.

2. The fibre in sugar cane has a very slow rate of degradation in the ruminant and it contributes little effective energy to the animal. As a result the factor in sugar cane which determines its nutritive value is the content of soluble sugars.

3. For productive purposes sugar cane must be supplemented with urea (for the rumen fermentation) by-pass protein and by-pass energy (the best supplements

are those of vegetable origin, because they have a higher energy value as compared with animal protein products such as fishmeal and meatmeal).

4. High protein forages such as cassava, leucaena and sweet potato are not normally effective supplements for sugar cane because of their fibre content. Use of such sources of protein therefore requires that the sugar content of the cane is increased either by removing the rind or by supplementing sugar cane with molasses of the different forages. Leucaena appears to be the most satisfactory for use with sugar cane.

5. Rice polishings is one of the most effective supplements for sugar cane because the starch by-passes the rumen fermentation and increases glucose absorption; the protein also by-passes the rumen fermentation and in addition to providing protein it also increases the efficiency of rumen microbial protein synthesis.

Molasses

6. When the basal diet is liquid molasses and urea, high protein forages from cassava, banana, leucaena or sweet potato can supply all the required roughage and protein. Rates of growth of more than 700 grams daily can be achieved on these combinations and this affords one of the most economical feeding systems presently available for tropical conditions.

7. Molasses toxicity may be caused by an absolute deficiency of glucose reaching the brain or it may be caused by the action of thiaminases destroying the thiamin and thus blocking the availability of glucose. In both cases the dietary factor inducing the condition has been shown to be inadequate roughage consumption. This gives rise to a dramatic reduction in rate of turnover of rumen digesta, in turn creating the conditions for development of thiaminase-producing bacteria and/or a change in rumen fermentation resulting in a reduction in availability of glucose precursors to the animal.

Sisal By-products

8. The rate of productivity of cattle fed a diet based on sisal pulp or bagasse is determined by the same constraints found to be important with sugar cane, namely a need for roughage characteristics and for by-pass protein and energy.

9. When sisal pulp is ensiled there is a loss of soluble sugars due to their conversion to alcohol and organic acids and as a result a dramatic reduction in nutritive value.

Banana By-products

10. Banana forage (the pseudo-stems and leaves) supplemented with fresh leucaena forage will support growth rates in cattle of about 500 grams daily.

Dual Purpose Production

11. Growth rates of more than 500 grams daily can be obtained in the first three months of a calf's life by combining restricted suckling (for about 30 minutes following milking) with molasses/urea supplemented with leucaena forage.

Recycling

12. Biogas can be produced from slurry in continuous digestors. When the input material is slurry from cattle fed on sugar cane and molasses, the biogas production in such a digestor (unmixed) per unit of total solids is a linear function of retention time. There is a maximum yield of 250 litres of gas per kilogramme of biomatter, with a 40 day retention time. These first results are the subject of further study.

13. The nitrogen value of slurry of cattle fed a sugar cane based diet is equivalent to US$28 per head year (average live weight of 300 kg), assessed as a substitute for ammonium sulphate applied to intensively-grazed pasture.

2.1.2 Future Research Priorities

On the basis of the hypothesis that the fibre content of sugar cane is one of the constraints affecting its nutritive value, a series of trials will be carried out to determine ways in which sugar cane can be enriched with additional sugar, or alternatively how the fibre could be put to uses other than cattle feeding. As part of this programme the following areas will be investigated.

1. Determination of the optimum sugar/fibre ratio in sugar cane-based diets in order to permit the use of cassava forage, leucaena, and sweet potato forage as protein supplements.

2. Studies on the partial pressing of sugar cane to enable enrichment of the sugar cane fed to cattle so as to achieve the desired sugar/fibre ratio as determined in 1.

3. Effect of partially processed sugar cane residue as a source of degradable biomass for production of biogas.

4. Determination of the input/output coefficients for large and small scale units employing sugar cane as a feed source for integrated milk/beef systems, with recycling of wastes.

5. Deriving alternative models for 4. by the use of feeds based on molasses and banana forage as different energy inputs.

6. Studies on the use of sugar cane rind as a reinforcement for cement/sand corrugated sheets and for cement-based construction blocks and panels (in collaboration with Intermediate Technology Group (ITDG)).

7. Studies on the use of sugar cane rind for hand-made paper production using biogas digestors as a medium for biological "pulping" (in collaboration with ITDG).

8. Gross comparison of cross-breeding systems (particularly the production of an F2 population) for dual purpose milk/beef production systems.

9. Determination of the most suitable supplements in feeding systems for cattle based on banana forage.

10. Development of feeding system for non-ruminants (pigs and poultry) using local resources.

11. Evaluation of the residual effluent from biogas digestors as sources of fertiliser and organic matter on poor quality calcareous soils in cropping programmes with sugar cane, banana, cassava and sweet potato.

12. Studies on the economic and social viability of integrated cattle production systems as an alternative to the growing of henequen (sisal) in the Yucatan peninsula.

2.2 Training

Within the Department of Research and Post Graduate Studies of the University of Yucatan, which is the ODM project counterpart, a programme of training is being carried out with the objective of preparing students at the Master of Science level. At the present time the only option is tropical animal production, and within this the emphasis is on ruminants. However it is hoped soon to include non-ruminants once an effective research programme is established in this area.

The course is of two years' duration and is based on active research with directed reading, limited theoretical course work and seminars. The core group of teachers is mainly provided through ODM assistance and these are supplemented by scientists from universities and institutes who visit the project for short periods in order to teach specific areas and to help in the orientation particularly of the basic research components.

The course is open to graduates from any part of Mexico and also to foreign graduates coming from tropical developing countries. Students from developed countries wishing to make a career in international tropical agriculture will also be considered in certain circumstances.

At the doctorate level the procedure is to combine the research carried out in the project with opportunities for specialised reading and tuition and academic exposure by means of twinning arrangements with universities in developed countries. At the present time two students are beginning these courses, one of which is in collaboration with Reading University and the other with the University of New England in Australia. Collaboration is also being sought with the University of Alberta and the University of Guelph in Canada. The choice of University in the developed country is dictated by the need to encounter active research groups with interest in the basic problem areas being investigated in the project.

Collaboration also exists with the tropical animal production course at the University of Reading whereby students on that course can do their practical year in the project in Merida. Discussions will shortly be held with the School of Tropical Veterinary Medicine in the University of Edinburgh in relation to collaboration with their post-graduate programme for students from tropical countries.

At the present time four Mexican students are registered in the MSc programme in Merida, while a fifth post-graduate student from Guinea, West Africa has registered for the doctorate degree.

Applications for 1979/1980 presently number 10, the majority of which are from States in Mexico other than Yucatan.

It is hoped that in 1979 it will be possible to hold the first of what is intended to be an annual series of short courses in tropical animal production systems. These courses will be aimed at technical personnel at all levels originating from Mexico

and from other tropical countries. The objective of the courses will be to give an up-to-the-minute presentation of appropriate systems of cattle production for tropical countries, with appropriate background information in related disciplines.

2.3 Development and Extension

2.3.1 Mexico

There is close collaboration between the project and the Development Bank of Mexico (FIRA). The professional staff in Merida act as advisers to the FIRA programmes and specifically to the tropical beef and milk production project located on the C41 demonstration farm in the Chontalpa Plain in Tabasco State. This collaboration will be extended as further tropical demonstration farms are set up by the Bank, one of which is in the State of Yucatan and situated quite close to the veterinary school.

The project has been asked by the State Sugar Commission to provide advice on programmes for use of sugar cane and its by-products in cattle feeding throughout Mexico and specifically for projects in which the State Sugar Commission has a direct interest.

The project has close links with Cordemex, the State industry concerned with sisal production and processing. This has an ambitious plan for establishing in Yucatan a large number of units where the by-product from the sisal processing factories will be fed to cattle.

2.3.2 Countries outside Mexico

As indicated in Section 1.8 there is very considerable interest in the Caribbean and Central American region and in other tropical areas around the world. The specific technologies which have aroused most interest and which appear to be the most appropriate for immediate application are as follows:

i. The use of high protein forages (leucaena, cassava and sweet potato) as the only supplement for liquid diets of molasses/urea for milk and beef production.

ii. The use of sugar cane as a dry season feed.

iii. Integrated production of milk and beef from dual-purpose cattle.

iv. Calf rearing by restricted suckling.

v. Recycling of wastes from cattle in full confinement to provide biogas and organic fertiliser.

2.4 Publications

Since 1976 the centre of Merida has collaborated with the Dominican Centre for Livestock Research with Sugar Cane in the editing and publishing of a scientific journal, Tropical Animal Production, which appears in three issues annually in both English and Spanish. This journal has mainly served as the medium for publishing the work carried out by the two contributing centres. However an increasing number of papers are now being received from researchers in other tropical developing countries. A first paper from another ODM-supported project (in Bolivia) has just been received and it is expected that the journal will in future play an increasing role as a publisher for ODM-supported projects in tropical countries.

Five hundred copies are produced in each language and the subscription list at the present time exceeds 300. The majority of these subscribers are in developing countries. The International Foundation for Science based in Sweden, which helps to finance more than 300 individual research projects, has recently taken out subscriptions so that all of its grantees who work in tropical animal production will receive copies.

Publication is by offset printing from typescripts prepared with an IBM electric typewriter and the final pages are prepared by project staff, so that only the photographing remains to be done by the printer. By this means publication is rapid; the average time between receipt of the paper and its publication is less than three months. In order to save time refereeing of papers is done by project staff and encouragement is given to the publishing of data which is interesting and appropriate.

2.5 Scientific Meetings

In July each year the project holds its annual meeting. This is given over to the presentation of research communications based on work carried out during the previous six months. There is close collaboration with the Dominican Centre which holds a similar meeting in January. This ensures that presentations are topical (the work is rarely more than six months old) and is an effective means of ensuring that the research is made available for critical discussion immediately.

2.6 Logistics and Administration

At the present time there is no serious problem in this area since there are only two full-time TCOs. Moreover the construction of research facilities and the post-graduate teaching programme are still in the development phase. By early 1980 however it is expected that three additional TCOs will join the staff and there will be a corresponding increase in the number of post-graduate students to be taught and supervised. The research programme will also expand both at the applied and basic level.

2.7 Proposed Supervision of Post-graduate Teaching Programme

Even after this expansion it is not envisaged that the planning and execution of research will present any serious problem, as the appropriate orientation is adequately covered by the periodic visits to the project of the consultant (TRP) who has overall responsibility to the University of Yucatan for the scientific direction of the project. However this is less appropriate in the case of post-graduate teaching and there probably will be a need for a specialist officer whose primary responsibility will be the coordination and supervision of the post-graduate teaching programme. This does require a full-time presence, and is not really compatible with the primary task of the present and envisaged team of TCOs - the day-to-day execution and supervision of research and the teaching in specific disciplines. But it is probably appropriate to give some thought at this stage to the provision of specific assistance for coordination and supervision of post-graduate teaching. This is a difficult post to fill and requires a person of considerable experience both in the field of post-graduate teaching as well as in the specific requirements associated with programmes for students from developing tropical countries.

3.0 . Conclusion

It is our opinion that the tropics, far from being unsuitable for livestock development, offer a potential for productivity per unit area and an economic viability which may far surpass the prospects of the temperate countries. The present retarded development of livestock in the tropics reflects not lack of potential but the fact that suitable research inputs to develop an appropriate technology for these areas have never been provided on an adequate scale.

The research and training elements in the programme, together with feed-back from the various commercial and applied research projects in many tropical countries (mentioned above, para 1.8) are, it is felt, considerable steps towards increased production in the tropics.

There should emerge a new skill in animal husbandry providing a fulfilling occupation for many in tropical areas, and leading to an improvement in the general quality of life by the provision of a balanced strategy of development which takes into account both ecological factors and human aspirations.

ODA. May 1979.

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

yellow

OFFICE MEMORANDUM

TO: All Regional Vice Presidents for Agriculture and Rural Development

DATE: August 1, 1979

S-agric + RD

FROM: Ted J. Davis, Chief, RORSU

SUBJECT: Annual Report: "Analysis of FY79 Lending Operations for Agriculture and Rural Development"

The above Report and covering memorandum is attached.

The Report, which has been reviewed by Mr. McNamara, has been circulated to the Regional Assistant Directors and Division Chiefs for Agriculture and Rural Development.

Mr. Yudelman asked me to share the Report with you and Project Directors for Agriculture and Rural Development.

Attachment:

cc: Mr. M. Yudelman, AGR
All Projects Directors for Agriculture and Rural Development

TJDavis/cc

WORLD BANK / INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. Warren C. Baum, CPSVP
(through Mr. Montague Yudelman)

DATE: July 11, 1979

FROM: Leif E. Christoffersen

SUBJECT: FY79 Lending for Agriculture and Rural Development

Attached is an analysis of FY79 lending for agriculture and rural development, prepared by the Rural Operations Review and Support Unit in this department.

During FY79, Bank and IDA approved 84 agriculture and rural development projects for a lending of US$2,547 million, or 25% of total lending. This is a 22% decline from last year's high level of lending, but only a 5% decrease in number of operations. However, over the last two years lending for agriculture and rural development averaged 32% of total lending.

IDA credits for agriculture and rural development totaled $979 million, compared with 1,341 million last year. About 44% of Bank/IDA lending went to countries with per capita incomes of less than US$300. Of the 84 projects, 45 of them were expected to benefit predominantly or exclusively rural poverty target groups. They account for US$1,272 million or half of agriculture and rural development lending.

Two of the subsectors showed marked changes in lending, compared to FY78. Irrigation projects accounted for 36% of agriculture and rural development lending, compared to 29% last year. Area development projects were 30% of lending, compared to 17% last year.

These projects are expected to realize 3.3 million tons of cereals annually at full development and over 3 million tons of other food crops, including fruits, vegetables and oil crops. It is interesting to note that while the expected incremental production of cereals is about the same as under last year's lending program, there has been a sharp increase in expected output of other food crops (40% above the similarly expected impact of last year's lending). Total value of all projected incremental output at full development from Bank and IDA supported projects in FY79 is about US$2.6 billion annually in constant prices.

Some 3.5 million rural families (or about 21 million people) will be expected to benefit directly from agriculture and rural development operations, and another 20 million families through agricultural research, food processing and storage, extension and social service investments.

Total project costs in agriculture and rural development projects were US$6,917 million. Bank/IDA share of these projects costs was 37% (down one percentage point from last year). However, co-financing from multilateral and bilateral sources was up some 148% over last year to US$515 million in 38 projects, with IFAD contributing US$127 million in 10 projects. Local cost financing was 20% of lending, compared to 22% in FY78.

Over the five-year period FY75-79, lending for agriculture and rural development was $11,611 million or 31% of total lending. This may be compared to estimates made in the Rural Development Policy Paper that the FY75-79 program would be US$7,000 million in 1974 prices for a total investment of US$15,000 million. Deflated to 1974 prices, actual FY75-79 lending was US$8,851 million, and total project costs US$22,569 million.

Until now, projects which are predominantly or exclusively poverty-oriented, have been defined as rural development projects, in line with the key emphasis given to this point in the Rural Development Policy Paper. As a result of recent management discussions on the need for further refinements of the definition of rural development, this report makes an attempt to introduce two new features in the analysis of rural development lending:

a. to treat poverty-oriented projects which are almost exclusively agricultural development, separate from projects which are more multisectoral in nature; and

b. to distinguish between projects which by design appear to be part of a broader and more comprehensive approach to rural poverty alleviation (even if project components are within a single sector), and those which do not seem part of such considerations at the design stage.

Such a distinction is often difficult and involve judgements on which there may be differences of opinion. Further work on this distinction will be pursued in our department's FY80 work program.

Since most appraisal reports do not yet provide explicit analysis of expected project impact on poverty groups, within the poverty line estimates in the Social Indicators Data Sheet for each country, there is also a certain degree of judgement on whether a project fulfills the major rural development criterion, i.e., that it is primarily focusing benefits to the rural poverty groups. On this point the FY79 data for each of the six regions have been cleared at the Assistant Director level in each region's Projects Department (whose final judgements were accepted). The regions and CPS have, therefore, no known differences of opinion on data in this report regarding the distinction between general agricultural projects, on the one hand, and poverty-oriented rural development projects, on the other.

Beyond the classification of rural development projects, Mr. Stern has recently reminded staff that poverty orientation in other agricultural projects when less than half of benefits are directed to the poor, should also be brought out in project documentation. In his view, this should not require any additional data "since the description of beneficiaries and of income effects is a regular part of project analysis.", (Minutes from OVP meeting, dated June 18). In the course of reviewing this year's 84 projects in agriculture and rural development it is clear that many appraisal reports

do not in fact yet reflect such a requirement. Mr. Yudelman has recently asked our advisory staff to emphasize this point in their comment to operational departments during the project review process. In the future this should enable us to analyze poverty issues more comprehensively in our lending program.

After your review of this report, we plan to distribute it to the regions and to Mr. McNamara and Mr. Stern.

TDavis/LEChristoffersen:lcm

cc: Mr. van der Tak
Mr. Turnham

Attachment

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No. 05

ANNUAL REPORT

ANALYSIS OF FY79 LENDING OPERATIONS

FOR

AGRICULTURE AND RURAL DEVELOPMENT

June 29, 1979

Rural Operations Review and Support Unit
Agriculture and Rural Development Department

ANALYSIS OF FY79 LENDING OPERATIONS IN AGRICULTURE AND RURAL DEVELOPMENT

Foreword

Until now, rural development projects have been defined as those which are predominantly or exclusively poverty-oriented, in line with the key emphasis given to this point in the Rural Development Policy Paper. As a result of recent managment discussions on the need for further refinements of the definition of rural development, this report makes an attempt to introduce two new features in the analysis of rural development lending:

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Such distinctions are often difficult and involve judgements on which there may be differences of opinion. Further work on this has been initiated by the Agriculture and Rural Development Department as well as on the multiplicity of components and the replicability of projects costs and benefits.

Since most appraisal reports do not yet provide explicit analysis of expected project impact on poverty groups, within the poverty line estimates in the Social Indicators Data Sheet for each country, there is also a certain degree of judgement on whether a project fulfills the major rural development criterion, i.e., that it is primarily focusing benefits on the rural poverty groups. On this point the FY79 data for each of the six regions have been cleared at the Assistant Director level in each region's Projects Department (whose final judgements were accepted). The regions and CPS have, therefore, no known differences of opinion on data in this report regarding the distinction between general agricultural projects, on the one hand, and poverty-oriented rural development projects, on the other.

Beyond the classification of rural development projects, Mr. Stern has recently reminded staff that poverty orientation in other agricultural projects, when less than half of benefits are directed to the poor, should also be brought out in project documentation. In his view, this should not require any additional data "since the description of beneficiaries and of income effects is a regular part of project analysis." (Minutes from OVP meeting, dated June 18).

ANALYSIS OF FY79 LENDING OPERATIONS IN AGRICULTURE AND RURAL DEVELOPMENT

1. In FY79 the Bank and IDA approved 84 agriculture and rural development projects [1/] for a lending volume of US$2,547 million, or 25% of the Bank Group's total commitments for the year.[2/] Compared to last year's rather large lending for such projects, this year's lending is a decrease of 22%, but only a 5% decrease in the number of projects. However, over the last five years lending to agriculture and rural development has accounted for 31% of the Bank Group's total commitments, compared with a 21% share in the previous quinquennium. The average annual growth rate of the last five year period was nearly 20%. It is expected that agriculture and rural development will continue to provide about one-third of the lending over the next five years, therefore increasing in step with Bank Group lending as a whole at a rate of about 5% per annum in real terms. For direct comparison with earlier years see Table 1.1 and a graph showing the ten year trend (Table 1.2).

2. IDA credits for agriculture and rural development totalled US$979 million, or 33% of the total IDA lending in FY79. This compares with US$1.341 million in FY78 or 58% of the total IDA lending. IBRD loans for agriculture and rural development totalled US$1,568 million, or 22% of the total IBRD lending in FY79. This compares to US$1,929 million in FY78 or 32% of the total IBRD lending in that year.

3. In FY79, 44% of Bank and IDA lending for agriculture and rural development, (and half of the number of projects) was directed to countries with per capita incomes of less than US$300.

RURAL DEVELOPMENT

4. Table 2 shows the distribution of lending for agriculture and rural development. Forty-five projects, accounting for US$1,272 million or 50% of total agriculture and rural development lending in FY79 are expected to benefit predominantly or exclusively the rural poverty group (i.e. those falling below poverty lines estimated by country economists and presented in the Social Indicators Data Sheet). On this basis projects have been classified as rural development, irrespective of whether they were principally designed for agricultural development or as a broader and more multifaceted approach to rural poverty. The Rural Development Policy Paper stressed that rural development projects generally should be designed as part of a larger operational strategy to alleviate rural poverty. About 20 of the 45 poverty-oriented projects appear to have such an objective and therefore may have been designed in direct response to poverty problems. Whether the other 25 projects are also to be considered part of such an approach is difficutl to judge from appraisal reports. Some of them may be poverty-oriented more by coincidence than by deliberate design.

1/ Includes Bangladesh Fertilizer Import Credit which has been reclassified as a Program Loan.

2/ The World Bank approved 247 projects across all sectors in FY79 for a lending total of US$10,011 million.

5. As to multisectoral projects, the Policy Paper suggested no specific lending objectives. In FY79, 9 of the 45 rural development projects can be considered multisectoral projects, in as much as more than 25% of project costs are for non-agricultural activities. The remaining 36 rural development projects involve principally or only agricultural activities:

FY79 Lending for Rural Development

	No.	Lending (US$mill)
Multisectoral	9	323
Poverty-oriented agriculture	36	949
Total	45	1,272

6. Over the five year period FY75-79, 226 rural development projects have been approved with a total lending of US$5,964 million. This represents fifty-one percent of the total lending for agriculture and rural development in this period. It is expected that lending for these poverty-oriented projects will continue to account for half of such lending in the future.

7. Recent reviews of rural development lending have focused on the need for appraisal reports to bring out more clearly the breakdown of project costs by beneficiaries, and the income effect on the rural poverty group. Management has also advised that all project reports, including more traditional agricultural projects, should show the proportion of direct benefits which are expected to accrue to the various poverty target groups. As this becomes more explicit in project documentation, future lending analyses will attempt to take a broader overview of the expected poverty impact of projects even when only a minority of benefits are expected to accrue to the poor.

8. Past classification of rural development projects has relied primarily on an assessment of the proportion of direct project benefits. An attempt will be made over the next year to estimate secondary benefits under the poverty impact of projects.

FINANCING

9. Total project costs of FY79 projects in agriculture and rural development were US$6,917 million. The average Bank/IDA financing percentage was 37% - down by one percentage point from the previous year. This decline was more than offset by an increase of US$309.2 million in co-financing by other donors. Multilateral and bilateral sources provided US$515 million, or 7.5% of total project costs, compared with US$206 million or 2.3% in FY78. IFAD provided US$127 million, or 25% of all the co-financing for the year. Table 3 shows a complete listing of co-financers.

10. Local cost financing was included in 45 of the 84 FY79 agriculture and rural development projects. In total, local financing accounted for about US$517 million or 20% of agriculture and rural development lending, compared to 22% in FY78.

SUBSECTORS AND COMPONENT ANALYSES

11. Table 4 represents a comparative distribution of agriculture and rural development project lending by subsector for FY75-79. For FY79, irrigation projects remain the largest subsector accounting for US$926 million, about 36% of lending, up from 29% for the previous year. Lending for area development was up substantially from 17% in FY78 to 30% in FY79. Agriculture credit projects, as a percent of such lending, were down from 16% to 11%. Forestry lending showed a dramatic increase to US$133.8 million in 9 projects, from US$92.2 million in 3 projects in FY78. Lending for fisheries were also up significantly in FY79 with 4 projects totalling US$47.7 million, compared with 1 project totalling US$17.5 in FY78.

12. While projects are officially classified by their leading subsector or principal investment category, many projects include components in several subsectors. For example, an area development project may include agricultural credit, extension and livestock development components. Thus, more precise indication of the distribution of investments is shown by aggregating project costs across the various components (Table 5). Here the irrigation sector again dominates other components with a total investment cost of US$1,701 million; livestock follows with US$1,099 million. Other significant components were on-farm crop development (US$492 million), and agricultural extension (US$236 million). Agricultural credit, while in some tables indicated as a separate cost component, may also be tabulated according to its end use. This year agricultural credit amounted to US$1,040 million, or 24% of all production investments.

13. A summary, by main functional category, shows the following:

Production investments - directly relating to agriculture	79.8%
Infrastructure investment - roads, electrification, harbors, etc.	6.8%
Social services investments - health, education, water supply, etc.	2.0%
Administration and management - staff, consultants, equipment, monitoring and evaluation, etc.	11.4%

Social component investments continue to be a small percentage (2% declining slightly from 2.5% last year), accounting for US$107 million of investment. Of the 84 agriculture and rural development projects, 17 had rural water supply components and 16 had health components.

PRODUCTION

14. At full production, the total value of annual incremental agriculture production derived from FY79 project investments is estimated to be US$2,630 million (Table 6). Nine projects, where estimates of incremental production were not directly quantified, are excluded from this total. Such projects include the extension, research, technical assistance and processing projects. The 75 projects which include estimates of incremental production at full development account for US$2,290 million of FY79 Bank/IDA investments. Thus, slightly more than one additional dollar of output per annum is generated for each dollar of investment by the Bank and IDA.

15. Food production accounts for US$2,090 million or about 80% of their total value of output, with food production at full development expected to increase by about 7.0 million tons a year. Cereals account for 3.3 million tons of this total, with rice being the most important food crop produced, accounting for about 1,100 thousand tons annually, followed by wheat and maize at about 900 thousand tons each. Other grains are expected to increase by 400 thousand tons. Food crops other than cereals, including sugar, pulses, oil crops and fruits and vegetables, account for about 3.3 million tons. Meat production is expected to increase by 300 thousand tons and milk by 400 million liters annually.

16. In addition to food crops, an incremental output of fibers, rubber, and forest products valued at US$540 million at full development is anticipated from FY79 projects.

EXPECTED PROJECT BENEFICIARIES

17. At full development some 3.5 million rural families (nearly 21 million people) are expected to benefit directly from 73 of the 84 FY79 projects in agriculture and rural development (Table 7). Of these 3.5 million, about 63% of the families have incomes below the poverty level for their respective countries. About half of the direct beneficiaries are accounted for in the 45 rural development projects. Overall there was a substantial drop from last year's program in the numbers of direct beneficiaries. Generally, this is explained by the large number of South Asian beneficiaries in last year's India National Dairy Project, from which direct benefits were expected to accrue to 3.5 million rural families. On the other hand, this year the numbers of expected direct beneficiaries have increased in four regions, e.g. in East Asia and Pacific (a 57% increase) and the EMENA Region (a 125% increase).

18. Among the direct beneficiaries of FY79 projects, 2.2 million farm families, or about 13 million people fall within the poverty target group. For four regions this represents substantial increases over FY78 in the number of direct beneficiaries in the target group (East Africa, East Asia, EMENA and Latin America). Most beneficiaries in the poverty group live in Asia (South Asia - 36.5%, East Asia and Pacific - 30%), followed by Africa (East Africa - 16.5%, West Africa - 7.6%), with less than 10% of these rural families from Latin America (4.8%) and EMENA (4.6%).

19. Another 20 million rural families are expected to derive indirect or other benefits from FY79 agriculture and rural development projects. Such benefits include: (1) increased production from investments in agriculture extension, research and processing facilities, (2) improved marketing, investments in improved or new roads and storage facilities, (3) increased temporary employment opportunities, and (4) new or improved social services such as water supply, health and education facilities. Almost two-thirds of these beneficiaries are served under 3 Asian extension projects, 1/ with another 5.7 million families expected as beneficiaries of the India National Cooperative Development Corporation Project.

20. In addition to the about 800,000 rural families expected to directly benefit from increased full time or part time employment, some 815,000 person years of temporary employment are estimated to be generated during the implementation (or construction) phase of FY79 projects, generally the first five years of project life. Of the total temporary employment expected, EMENA accounts for 50% and South Asia 36%.

21. About 1.3 million people will also benefit from water supply and health facilities. Most of the community development beneficiaries (204,000 people) are part of the Indonesian Transmigration Project, and the majority of vocational training recipients (78,400 persons) will be from 3 projects in West Africa. 2/ Primary and other adult education beneficiaries (87,700 persons are mainly in Latin America and Asia. Table 7.1 details a breakdown of expected beneficiaries by project type and category of benefits.

RATES OF RETURN

22. Forty-five percent of the agriculture and rural development projects had economic rates of return of 10-19%; 29% were between 20-29% and 26% were 30% and over. Six of the 84 projects (mainly technical assistance, extension research and training) did not include a rate of return analysis. See Table 8.

MONITORING AND EVALUATION

23. Monitoring and evaluation components were specifically included in 77 or 92% of the agriculture and rural development projects approved in FY79, compared to 75% of the projects in FY78. Thirty of these projects had monitoring and evaluation costs identified separately, while in the remainder either the costs could not be separated easily from other managment costs, or the monitoring and evaluation was to be carried out by an established unit, in many cases set up under a previous loan or credit. For those projects where monitoring and evaluation costs were separately identified, the total amount allocated was US$18.7 million (Table 9).

PROJECT LISTS

24. Following are complete lists of all agriculture and rural development projects (indicated separately) approved in FY79.

1/ India Composite Agriculture Extension; Sri Lanka Extension and Research; and Philippines National Extension.

2/ Central African Empire - Livestock; Niger - Irrigation; Nigeria - Agri-Management Training Institute.

LIST OF RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

REGION / COUNTRY	PROJECT	NAME	IDA CREDITS US.$MIL	BANK LOANS US.$MIL	BANK AND IDA US $MIL
EAST AFRICA					
BURUNDI	2BUIAT01	FORESTRY	4.3	.0	4.3
KENYA	2KENAN01	SMALLHOLDER COFFEE IMP	27.0	.0	27.0
MADAGASCAR	2MAGAI05	MANGOKY AGRIC DEVT	12.0	.0	12.0
MALAWI	2MALAD06	NATIONAL RURAL DEVT.	22.0	.0	22.0
RWANDA	2RWAAD04	RURAL DEVT. MUTARA-II	8.8	.0	8.8
SOMALIA	2SOMAL02	CENTRAL RANGELANDS DEVT	8.0	.0	8.0
	2SOMAR01	EXTENSION & TRAINING	10.5	.0	10.5
SUDAN	2SUDAD06	CROP AND LIVESTOCK-SOUTH	15.0	.0	15.0
WEST AFRICA					
CENTRAL AFRICAN EMPIRE	3CAEAL01	LIVESTOCK	2.5	.0	2.5
NIGER	3NIGAI01	IRRIGATION I	15.0	.0	15.0
	3NIGAL01	LIVESTOCK I	12.0	.0	12.0
NIGERIA	3NIRAD08	AGRIC DEVT - ILORIN	.0	27.0	27.0
	3NIRAD09	BIDA AGRICULTURE DEVT.	.0	23.0	23.0
TOGO	3TOGAP02	COCOA/COFFEE II	14.0	.0	14.0
ASIA					
AFGHANISTAN	5AFGAD01	RURAL DEVT. I	16.5	.0	16.5
SYRIA	5SYRAI03	EUPHRATES DRAINAGE I	.0	30.0	30.0
TUNISIA	5TUNAF02	FISHERIES II	.0	28.5	28.5
YEMEN ARAB REPUBLIC	5YARAI04	TIHAMA III (WADI MAWR)	15.0	.0	15.0
YEMEN, PEOPLES DEMOCRATIC REP	5YDRAF03	FISHERIES II	10.0	.0	10.0
YUGOSLAVIA	5YUGAD03	AGROIND BOSANSKA-KRAJINA	.0	55.0	55.0
	5YUGAI03	MACEDONIA IRRIGATION	.0	82.0	82.0
LAC					
BOLIVIA	6BOLAD03	OMASUYOS-LOS ANDES R/D	3.0	.0	3.0
BRAZIL	6BRAAD09	SAO FRN II - RURAL DEVT.	.0	28.0	28.0
	6BRAAD12	RURAL DEVT V-PERNAMBUCO	.0	40.0	40.0
	6BRAAD16	INTEG. RURAL DEVT. VI-SERGIPE	.0	26.0	26.0
DOMINICAN REPUBLIC	6DOMAI02	NIZAO IRRIG PROJ.	.0	27.0	27.0
ECUADOR	6ECUAD01	RURAL DEVT I-TUNG	.0	18.0	18.0
MEXICO	6MXCAI15	RIO SINALOA/FUERTE IRRIGATION	.0	92.0	92.0
	6MXCAI11	SMALL SCALE AGRIC. INFRA.	.0	60.0	60.0
PANAMA	6PANAC01	TROPICAL TREE CROP DEVT.	.0	19.0	19.0
EAST ASIA					
INDONESIA	7INSAD05	TRANSMIGRATION II	67.0	90.0	157.0
	7INSAI16	CIMANUK LOWER BASIN FLOOD CTL.	.0	50.0	50.0
	7INSAI11	IRRIGATION XII	.0	77.0	77.0
MALAYSIA	7MAYAI10	MUDA IRRIGATION II	.0	31.0	31.0
	7MAYAI09	KRIAN/SUNGEI MANIK IRRIG	.0	26.5	26.5
	7MAYAP02	SMLHLDRS COCONUT DEVT.	.0	19.5	19.5
PAPUA NEW GUINEA	7PAPAD05	RURAL DEVELOPMENT I	20.0	.0	20.0
PHILIPPINES	7PHLAC06	SMALL FARMER DEVT.	.0	16.5	16.5
	7PHLAI16	MAGAT RIVER IRRIGATION	.0	21.0	21.0
THAILAND	7THLAD04	NORTHERN RURAL DEVT	25.0	.0	25.0
	7THLAI09	NE IRRIGATION II	.0	17.5	17.5
SOUTH ASIA					
BANGLADESH	8BANAF01	OXBOW LAKE FISHERIES	6.0	.0	6.0
INDIA	8INDAT06	UP SOCIAL FORESTRY	23.0	.0	23.0
NEPAL	8NEPAD02	RURAL DEV II	11.0	.0	11.0
SRI LANKA	8SRIAD03	KURUNEGALA RURAL DEVT.	20.0	.0	20.0
TOTAL			367.6	904.5	1272.1

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LIST OF AGRICULTURE DEVELOPMENT PROJECTS
FISCAL YEAR 79

REGION / COUNTRY	PROJECT	NAME	IDA CREDITS US.$MIL	BANK LOANS US.$MIL	BANK AND IDA US.$MIL
EAST AFRICA					
KENYA	2KENAA06	NAROK MIXED FARMING	13.0	.0	13.0
	2KENAD13	SUGAR PRODUCTION II	.0	72.0	72.0
ZAMBIA	2ZAMAP05	COFFEE TECHNICAL ASSISTANCE	6.0	.0	6.0
WEST AFRICA					
IVORY COAST	3IVCAT01	FORESTRY	.0	18.0	18.0
	3IVCAP15	SMALLHOLDER RUBBER	.0	7.6	7.6
LIBERIA	3LIBAT01	INTEGRATED FORESTRY DEVT.	6.0	.0	6.0
MALI	3MLIZZ01	OFFICE DU NIGER	4.5	.0	4.5
	3MLIAT01	AFFORESTATION I	4.5	.0	4.5
NIGERIA	3NIRAA01	AGRIC. MGT./TRAINING INSTITUTE	.0	9.0	9.0
	3NIRAT01	FORESTRY I	.0	31.0	31.0
EMENA					
ALGERIA	5ALGAC01	MEAT IND(ONAB)	.0	42.0	42.0
CYPRUS	5CYPAI03	AGRICULTURE IRRIGATION II	.0	11.0	11.0
GREECE	5GREAT01	FORESTRY DEVELOPMENT	.0	25.0	25.0
MOROCCO	5MYCAC04	CNCA IV	.0	70.0	70.0
ROMANIA	5ROMAI05	MOSTISTEA/CALMATZUI IRRIG.	.0	70.0	70.0
	5ROMAC04	SECOND LIVESTOCK	.0	75.0	75.0
SYRIA	5SYRAN01	COTTON SEED PROCESSING	.0	21.0	21.0
TURKEY	5TURAN02	GRAIN STORAGE	.0	85.0	85.0
LAC					
COLOMBIA	6CLMAC05	INCORA AGRIC. CREDIT	.0	20.0	20.0
GUYANA	6GUYAT01	AGRIC. FORESTRY	.0	10.0	10.0
JAMAICA	6JAMAT01	FORESTRY I	.0	12.0	12.0
MEXICO	6MXCAI09	RIO PANUCO SUPPLEMENT 1/	.0	25.0	25.0
PARAGUAY	6PARAL05	LIVESTOCK & AGRICULTURAL DEVT.	.0	25.0	25.0
EAST ASIA					
LAO, P.D.R.	7LAOAD01	AGR. REHAB & DEVT. II	10.4	.0	10.4
PHILIPPINES	7PHLAR01	NATIONAL EXTENSION	.0	35.0	35.0
VIET NAM	7VNMAI01	IRRIGATION I	60.0	.0	60.0
SOUTH ASIA					
BANGLADESH	8BANAA02	FERTILIZER IMPORTS I	25.0	.0	25.0
	8BANAI12	DRAINAGE & FLOOD CONTROL	19.0	.0	19.0
BURMA	8BUAAD02	LOWER BURMA PADDY DEV II	34.5	.0	34.5
	8BUAAP02	RUBBER REHABILITATION	4.5	.0	4.5
INDIA	8INDAC22	NCDC	30.0	.0	30.0
	8INDAD23	PUNJAB IRRIGATION	129.0	.0	129.0
	8INDAI30	HARYANA IRRIGATION	111.0	.0	111.0
	8INDAR07	NATIONAL AGRIC. RESEARCH	27.0	.0	27.0
	8INDAR12	COMPOSITE AGRIC EXT	25.0	.0	25.0
MALDIVES ISLANDS	8MLDAF01	FISHERIES	3.2	.0	3.2
NEPAL	8NEPAI06	NARAYANI ZONE IRRIG.(II)	14.0	.0	14.0
PAKISTAN	8PAKAR03	EXT & ADAP RES (SIND)	9.0	.0	9.0
	8PAKAI29	SCARP MARDAN (PHASE I)	60.0	.0	60.0
SRI LANKA	8SRIAR01	NATIONAL E+R	15.5	.0	15.5
TOTAL			611.1	663.6	1274.7

1/ Supplement to a previous loan, not counted as a separate lending operation, but lending amount is included in the total.

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TABLE 1 :
TOTAL AGRICULTURE AND RURAL DEVELOPMENT LENDING
IN FISCAL YEAR 79

REGION	NUMBER OF AGR AND RD PROJECTS	TOTAL PROJECT COST(TC) US $MIL	AVERAGE PROJECT COSTS	BANK LENDING US $MIL	IDA CREDITS US $MIL	TOTAL BANK AND IDA LENDING US $ MIL	% BANK AND IDA LENDING	LENDING AS % OF TOTAL PROJECT COSTS
EAST AFRICA	11	478.0	43.5	72.0	126.6	198.6	7.8	41.5
WEST AFRICA	13	408.7	31.4	115.6	58.5	174.1	6.8	42.6
EMENA	15	2,782.9	185.5	594.5	41.5	636.0	25.0	22.9
LAC[1/]	13	1,109.9	85.4	402.0	3.0	405.0	15.9	36.5
EAST ASIA	14	1,064.1	76.0	384.0	182.4	566.4	22.2	53.2
SOUTH ASIA [2/]	18	1,073.6	59.6	.0	566.7	566.7	22.3	52.8
TAL	84	6,917.2	82.3	1,568.1	978.7	2546.8	100.0	36.8

1/ Includes Mexico Rio Panuco Supplement. Amendment/supplement to previous loan or credit, not counted as a separate lending operation, but included in the lending volume.

2/ Includes Bangladesh Fertilizer Import Credit, which has been reclassified as a Program Loan.

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TABLE 1.1 AGRICULTURE AND RURAL DEVELOPMENT LENDING FY70-79

	FY75	FY76	FY77	FY78	FY79	Annual Average FY70-74	Annual Average FY75-79
TOTAL BANK/IDA LENDING							
No. of Projects 1/	190	214	228	236	247	142	223
Lending ($M)	5,896	6,632	7,067	8,411	10,002	3,076	7,602
TOTAL AGRICULTURE AND RURAL DEVELOPMENT LENDING							
No. of Projects	70	65	84	88	84	40	78
Lending ($M)	1,858	1,628	2,308	3,270	2,547	635	2,322
of Total Bank Group Lending	32%	25%	33%	39%	25%	21%	31%
RURAL DEVELOPMENT							
No. of Projects	41	38	53	49	45	14	45
Lending ($M)	1,013	722	1,235	1,722	1,272	188	1,193
% of Total Agr. & Rural Development Lending	55%	44%	54%	53%	50%	30%	51%
AGRICULTURE							
No. of Projects	29	27	31	39	39	26	33
Lending ($M)	845	906	1,073	1,548	1,275	447	1,129
OTHER SECTORS							
No. of Projects	120	150	144	148	163	101	145
Lending ($M)	4,038	5,004	4,759	5,141	7,455	2,436	5,279

1/ Amendment/supplement not counted as a separate lending operation.

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TABLE 1.2

GROWTH OF AGRICULTURE AND RURAL DEVELOPMENT LENDING
IN TOTAL BANK OPERATIONS FROM 70 TO 79

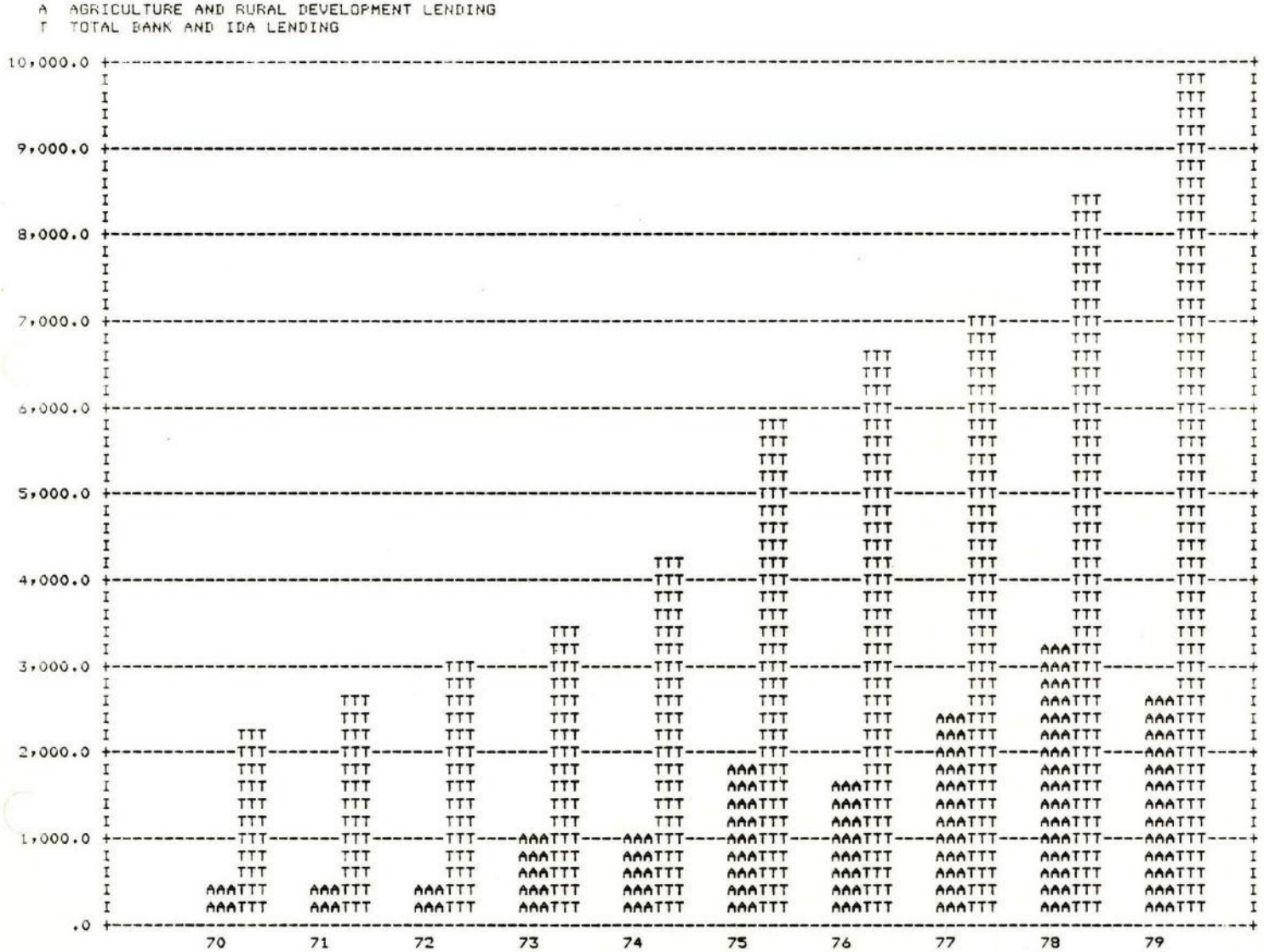

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TABLE 2 :
RURAL DEVELOPMENT VERSUS AGRICULTURE LENDING
IN FISCAL YEAR 79

REGION	AGRICULTURE DEV. NUMBER OF PROJECTS	AGRICULTURE DEV. TOTAL PROJECT COSTS(TC)	AGRICULTURE DEV. AVERAGE PROJECT COSTS	AGRICULTURE DEV. BANK AND IDA LENDING	RURAL DEVELOPMENT NUMBER OF PROJECTS	RURAL DEVELOPMENT TOTAL PROJECT COSTS(TC)	RURAL DEVELOPMENT AVERAGE PROJECT COSTS	RURAL DEVELOPMENT BANK AND IDA LENDING	NUMBER OF PROJECTS	TOTAL PROJECT COSTS(TC)	AVERAGE PROJECT COSTS	BANK AND IDA LENDING
EAST AFRICA	3	165.2	55.1	91.0	8	312.8	39.1	107.6	11	478.0	43.5	198.6
WEST AFRICA	7	196.7	28.1	80.6	6	212.0	35.3	93.5	13	408.7	31.4	174.1
EMENA	8	2,111.7	264.0	399.0	7	671.2	95.9	237.0	15	2,782.9	185.5	636.0
LAC	4	321.2	80.3	92.0	9	788.7	87.6	313.0	13	1,109.9	85.4	405.0
EAST ASIA	3	194.5	64.8	105.4	11	869.6	79.1	461.0	14	1,064.1	76.0	566.4
SOUTH ASIA	14	976.1	69.7	506.7	4	97.5	24.4	60.0	18	1,073.6	59.6	566.7
TOTAL	39	3,965.4	101.7	1274.7	45	2,951.8	65.6	1272.1	84	6,917.2	82.3	2546.8

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TABLE 3:

Multilateral and Bilateral Support to
Agriculture and Rural Development Projects

(FY79)

	East Africa	West Africa	EMENA	LAC	East Asia	South Asia	TOTAL
	US$ Million						
Multilateral Support							
International Fund for Agr. Dev't.	30.5	2.5	62.0	4.0	27.5		126.5
Commonwealth Dev't. Corporation	15.0	15.0		11.5			41.5
European Development Fund	13.1	0		7.0			20.1
European Economic Community	4.3	5.1	6.0		8.2		23.6
African Development Fund	8.9	3.3					12.2
African Development Bank	6.0	5.0					11.0
OPEC Special Fund					10.0		10.0
ted Nations Development Program	0.7		1.0	1.2	1.3	2.5	6.7
nter-American Development Bank				5.0			5.0
World Food Program	4.3						4.3
European Investment Bank				4.0			4.0
Subtotal	82.8	30.9	69.0	32.7	47.0	2.5	264.9
Bilateral Support							
Canada	4.0					25.0	29.0
France	1.85	15.4					17.25
Germany	8.5	7.8	50.0				66.3
Kuwait			13.0		10.0		23.0
Netherlands					10.0		10.0
United Kingdom	34.2	0		1.5	0.3		36.0
United States	22.6						22.6
Australia					0.9		0.9
Subtotal	71.15	23.2	63.0	1.5	21.2	25.0	205.05
rangements pending			45.3				45.3
TOTAL	153.95	54.1	177.3	34.2	68.2	27.5	515.25

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TABLE 4 :
SUB-SECTORIAL DISTRIBUTION OF
AGRICULTURE AND RURAL DEVELOPMENT LENDING FROM 75 TO 79

SUB-SECTOR	SUBSECTOR NAME	FISCAL YEAR 75 NO.OF PROJECTS	75 BANK AND IDA US $MIL	76 NO.OF PROJECTS	76 BANK AND IDA US $MIL	77 NO.OF PROJECTS	77 BANK AND IDA US $MIL	78 NO.OF PROJECTS	78 BANK AND IDA US $MIL	FISCAL YEAR 79 NO.OF PROJECTS	79 BANK AND IDA US $MIL
AA	AGRICULTURE SECTOR LOAN	0	.	1	25.0	1	40.0	0	.	3	47.0
AC	AGRICULTURAL CREDIT	8	236.5	5	167.6	10	438.0	9	526.2	7	272.5
AD	AREA DEVELOPMENT	22	630.5	19	407.3	27	567.1	24	560.9	21	761.2
AF	FISHING	2	14.1	2	18.0	3	34.5	1	17.5	4	47.7
AI	IRRIGATION AND DRAINAGE	14	506.7	16	488.0	23	835.0	17	939.9	22	926.0
AL	LIVESTOCK	9	149.0	11	271.7	6	73.5	5	267.0	4	47.5
AN	AGRO-INDUSTRY	1	34.0	4	62.5	4	141.0	7	307.0	3	133.0
AP	PERENNIAL CROPS	11	179.2	5	93.5	3	75.0	12	308.0	5	51.6
AR	RESEARCH AND EXTENSION	2	50.0	4	90.0	5	80.0	10	251.0	6	100.0
AT	FORESTRY	3	57.6	1	4.0	2	23.8	3	92.2	7	133.8
TOTAL 1/			1857.6		1627.6	84	2307.9	88	3269.7	84	2542.3 2/

1/ Includes supplements.
2/ Does not include one technical assistance project.

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TABLE 6.1
ANNUAL INCREMENTAL PRODUCTION EFFECTS (AT FULL DEVELOPMEN
OF AGRICULTURE AND RURAL DEVELOPMENT PROJECTS IN FISCAL FY79

COMMODITY GROUPS / CROP NAME	REGION EAST AFRICA TOTAL VOLUME IN 000 MT	TOTAL AT INT.PRICE US $MIL	EAST ASIA IN 000 MT	EAST ASIA US $MIL	EMENA IN 000 MT	EMENA US $MIL	LAC IN 000 MT	LAC US $MIL	SOUTH ASIA IN 000 MT	SOUTH ASIA US $MIL	WEST AFRICA IN 000 MT	WEST AFRICA US $MIL	TOT.VOLUME IN 000 MT	TOT.VALUE US $MIL
CEREALS														
RICE	30.3	9.4	707.6	219.4	1.4	.4	46.5	14.4	282.3	87.5	22.8	7.1	1,090.9	338.2
WHEAT	12.0	1.7	.	.	204.4	29.2	53.6	7.7	667.8	95.5	.	.	937.8	134.1
MAIZE	126.3	13.8	83.6	9.1	546.1	59.5	86.4	9.4	58.3	6.4	34.2	3.7	934.9	101.9
MILLET	1.9	.1	.	.	.2	.0	.	.	3.0	.2	.	.	5.1	.4
G.SORGHUM	21.1	2.1	.	.	6.5	.6	98.7	9.8	.	.	15.0	1.5	141.3	14.0
OTHER CEREALS	7.9	.	.	.	69.6	7.0	25.0	2.5	69.8	7.0	2.3	.2	175.8	16.7
		.0	.	.	.	.	.	.	.	.	1.2	.0		
		.0	.	.	.	.	.	.	.	.	.	.		
$TOTAL CEREALS	199.5	27.1	791.2	228.5	828.2	96.8	310.2	43.8	1081.2	196.6	75.5	12.5	3,285.8	605.7
LIVESTOCK PROD.														
BEEF(CARCASS)	.7	.9	.	.	7.6	10.2	19.9	26.7	.	.	4.8	6.5	33.0	44.4
FISH	.	.	.	.	13.7	6.6	.	.	12.7	6.1	.	.	26.4	12.7
OTHER	.	.	.	.	.3	.3	.	.	.	.	.	.	.3	.3
CATTLE(000 HEADS)	4.0	.7	.	.	.	.	.1	.0	.	.	350.5	65.5	354.6	66.3
MUTTON PRODUCTS	.8	1.8	.	.	1.1	2.5	.	.	.	.	.	.	1.9	4.3
SMALL STOCK(000 HEADS)	115.6	7.6	.	.	.	.	.	.	.	.	.	.	115.6	7.6
PORK PRODUCTS	.	.	.6	.8	205.8	286.9	.1	.1	.	.	.	.	206.5	287.9
OTHER MEAT PRODUCTS	.	.	.	.	56.1	69.7	.	.	.	.	7.3	8.8	65.4	78.5
OTHER STOCK	2.4	.1	.	.	.	.	.	.	.	.	.	.	2.4	.1
MILK (000 Liters)	2.1	.4	12.6	2.1	325.7	54.7	65.2	11.0	.	.	17.5	2.9	423.1	71.1
$TOTAL LIVESTOCK PROD.		11.6		3.0		430.9		37.9		6.1		83.7		573.1
NON FOOD CROPS														
COTTON LINT	1.7	2.5	.	.	7.1	10.4	20.6	30.1	29.1	42.5	1.0	1.5	59.5	86.9
JUTE	.	.	.	.	.	.	.	.	2.1	.8	.	.	2.1	.8
WOOL	.	.	.	.	.1	.4	.	.	.	.	.	.	.1	.4
RUBBER	.	.	.	.	.	.	.	.	3.5	4.8	9.4	12.8	12.9	17.5
TOBACCO	4.4	9.8	.	.	2.6	5.8	1.3	2.9	5.4	12.0	.	.	13.7	30.5
FODDER	.	.	6.5	.1	1424.9	21.4	.	.	301.4	4.5	1.0	.0	1,733.8	26.0
SEED	.	.	1.9	.4	.	.	.	.	.	.	.	.	1.9	.4
OTHER NON-FOOD	.	.	32.0	9.3	.	.	.	.	22.7	6.6	.	.	54.7	15.9
PULPWOOD(000 M3)	16.8	5.1	.	.	607.0	185.1	62.5	19.1	.	.	98.5	30.0	784.8	239.4
SAW LOGS(000 M3)	43.2	4.8	6.1	.7	588.0	65.9	106.5	11.9	.	.	286.2	32.1	1,030.0	115.4
FUELWOOD(000 M3)	13.0	.2	112.1	1.5	101.0	1.3	1.2	.0	172.4	2.2	13.8	.2	413.5	5.4
OTHER WOOD(000 M3)	13.0	1.2	7.1	.6	.	.	1.2	.1	.	.	13.8	1.2	35.1	3.2
$TOTAL NON FOOD CROPS		23.6		12.6		290.2		64.1		73.4		77.8		541.7
OILCROPS&OTHER FOOD														
PALM OIL	.	.	.	.	.	.	11.9	8.0	.	.	.	.	11.9	8.0
PALM KERNELS	.	.	.	.	.	.	1.7	.9	.	.	.	.	1.7	.9
GROUNDNUTS	11.0	6.8	42.1	26.1	.	.	3.3	2.0	6.5	4.0	.	.	62.9	38.9
SOYBEAN OIL	.	.	2.4	1.5	3.7	2.4	17.5	11.3	.	.	.	.	23.6	15.2
SOYBEAN MEAL	.	.	9.5	2.3	14.4	3.4	70.2	16.7	.	.	.	.	94.1	22.4
COPRA	.	.	5.5	3.8	.	.	.	.	30.8	21.6	.	.	36.3	25.4
COTTON SEED	3.3	1.4	.	.	13.2	5.4	38.5	15.8	54.0	22.1	1.7	.7	110.7	45.4
OTHER OILS	3.9	3.8	.	.	1.6	1.5	24.9	24.0	8.1	7.8	.	.	38.5	37.0
OTHER MEALS	3.5	.8	.	.	1.8	.4	58.1	13.8	18.7	4.5	.	.	82.1	19.5
PULSES	2.6	1.1	12.0	5.0	3.6	1.5	36.1	15.1	49.3	20.6	1.8	.8	105.4	44.1
SPICES	.	.	.	.	.	.	.	.	.3	.5	.	.	.3	.5
OTHER FOOD CROPS	.	.	.	.	.	.	.	.	5.0	1.2	.	.	5.0	1.2
SUGAR(REFINED)	109.0	19.2	.	.	97.2	17.1	23.7	4.2	123.6	21.8	.	.	353.5	62.2
ROOTS&TUBERS	32.7	2.6	163.2	12.7	190.4	14.9	169.6	13.2	1.7	.1	121.6	9.5	679.2	53.0
CITRUS FRUIT	.	.	.	.	25.3	8.6	144.8	49.2	.	.	.	.	170.1	57.8
OTHER FRESH FRUIT	2.7	.7	.	.	550.0	132.5	180.1	43.4	28.8	6.9	.	.	761.6	183.5
VEGETABLES	.2	.0	.	.	475.3	116.4	211.4	51.8	27.1	6.6	1.0	.2	715.0	175.2
COFFEE	10.3	31.3	7.8	23.7	.	.	7.8	23.7	.3	.9	3.5	10.6	29.7	90.3
COCOA	.	.	1.8	6.2	.	.	3.1	10.6	.3	1.0	2.4	8.2	7.6	26.1
TEA	.	.	1.7	3.7	.	.	.	.	.	.	.	.	1.7	3.7
$TOTAL OILCROPS & OTHER FOOD	179.2	67.6	246.0	85.0	1376.5	304.3	1002.7	303.7	354.5	119.7	132.0	30.1	3,290.9	910.3
TOTAL		129.9		329.0		1,122.2		449.4		195.8		204.0		2,630.1

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TABLE 5

MAJOR COST COMPONENTS IN
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

IN U.S. $ MILLIONS

COST CATEGORIES 1/	REGION EAST AFRICA	WEST AFRICA	EMENA	LAC	EAST ASIA	SOUTH ASIA	TOTAL
IRRIGATION	22.90	19.40	524.30	376.10	354.00	404.40	1701.10
SEASONAL INPUTS	17.60	10.57	2.50	35.53	24.60	28.60	119.40
ON-FARM CROP DEVT	58.00	25.27	200.40	139.38	39.00	29.70	491.75
CEREAL STORAGE	.	.	127.90	4.50	1.00	.	133.40
CEREAL PROCESSING	.	.12	41.20	4.70	1.00	.	47.02
OTHER CROP STOR/PROC	49.70	.30	85.28	8.30	2.20	1.30	147.08
AGRIC MKT DEVT	.50	1.57	.	2.70	2.80	10.10	17.67
SEASONAL INPUT PROD	3.40	7.56	2.20	.50	5.00	1.40	20.06
LIVESTOCK INPUTS	13.41	12.05	325.60	12.60	16.70	.80	381.16
ON RANCH DEVT	14.60	1.30	400.90	49.30	9.60	.	475.70
LIVESTOCK PROC	.	.19	228.30	.	.	.	228.49
LIVESTOCK MKT DEVT	2.00	.93	1.00	.	.	10.10	14.03
FISHERIES DEVT	.	.	16.40	.	.	7.09	23.49
ISHERIES INDS.	.	.	5.30	.	.	.03	5.33
ORESTRY DEVT	5.20	78.39	17.90	9.40	4.91	22.20	138.00
FORESTRY INDS.	.	.	9.10	14.74	.	.	23.84
AGRICULTURE RESEARCH	11.70	4.41	7.10	6.00	2.00	53.40	84.61
AGRICULTURE EXTENS.	43.80	24.25	6.70	31.50	59.80	69.80	235.85
OTHER	2.90	.	.00	.	.	51.60	54.50
SUBTOTAL DIRECT PRODUCTION	245.71	186.31	2002.08	695.25	522.61	690.52	4342.47
INVESTMENTS							
ROADS	24.46	25.00	60.30	36.01	34.80	22.70	203.27
ELECTRIFICATION	.	.45	.	1.84	.	.95	3.24
OTHER	3.50	.	72.10	3.08	77.35	1.20	157.23
SMALL INDUSTRY DEVT	.	.	.	2.70	2.80	.30	5.80
SUBTOTAL INFRASTRUCTURE	27.96	25.45	132.40	43.63	114.95	25.15	369.54
INVESTMENT							
COMMUNITY DEVT	10.56	5.17	3.20	6.28	11.00	.20	36.41
HEALTH	1.41	.57	.	4.42	2.92	1.75	11.07
EDUCATION	.40	.14	.	8.57	1.33	.90	11.34
WATER	2.47	.64	7.00	6.27	2.60	8.90	27.88
OTHER	3.20	.24	15.50	.43	.95	.05	20.37
SUBTOTAL SOCIAL SERVICES	18.04	6.76	25.70	25.97	18.80	11.80	107.07
ADMINISTRATION	43.73	43.90	30.50	45.35	41.79	80.09	285.36
MANAGEMENT TRAINING	3.79	12.48	.82	1.20	.97	5.71	24.97
MONITORING	4.82	6.39	1.30	2.15	.71	3.29	18.66
STUDIES	10.05	13.93	19.50	9.53	35.72	4.51	93.24
OTHER	2.70	.60	135.70	16.22	32.70	10.92	198.84
SUBTOTAL MANAGEMENT	65.09	77.30	187.82	74.45	111.89	104.52	621.07
PROJECT BASE COST	356.80	295.82	2348.00	839.30	768.25	831.99	5440.12
DUTIES & TAXES	.	.	.	.	.	7.10	7.10
PHYSICAL CONTINGS.	33.52	15.57	113.65	60.36	89.62	59.11	371.83
PRICE CONTINGS.	87.68	97.31	321.25	210.24	206.23	175.40	1098.11
CONTINGENCIES	121.20	112.88	434.90	270.60	295.85	241.61	1477.04
TOTAL PROJECT COST	478.00	408.70	2782.90	1109.90	1064.10	1073.60	6917.15
(CREDIT)	24.11	15.70	770.40	181.50	38.20	10.30	1040.21
(AGRIC.MACHINERY)	3.60	9.13	167.90	5.86	1.20	7.20	194.89
(FOREIGN-T.A.)	18.33	19.21	24.41	14.66	31.29	10.22	118.12
(LOCAL-T.A.)	4.45	.78	6.60	1.00	18.08	2.02	32.93
(DUTIES & TAXES)	18.40	28.30	85.60	7.80	5.20	16.00	161.30

1/ The following categories are not included in the above totals but are distributed across the various cost components. Credit is subsumed under various Direct Production Investments, agriculture machinery under on-farm crop development and on-ranch development; foreign TA and local TA under administration or other appropriate technical components, and duties and taxes, where not separable, are listed below so as to avoid double counting.

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TABLE 7:
DIRECT AND INDIRECT BENEFICIARIES OF
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

IN THOUSANDS OF FAMILIES

REGION NAME	DIRECT BENEFICIARIES	DIRECT BENEFICIARIES IN THE POVERTY TARGET GROUP	% IN THE POVERTY TARGET GROUP	INDIRECT BENEFICIARIES	INDIRECT BENEFICIARIES IN THE POVERTY TARGET GROUP	% IN THE POVERTY TARGET GROUP
EAST AFRICA	364.4	364.0	99.9	240.7	198.5	82.5
WEST AFRICA	204.1	167.5	82.1	210.0	.0	.0
[illegible]MENA	333.1	102.2	30.7	132.9	33.3	25.1
LAC	117.9	105.8	89.7	45.3	13.9	30.7
EAST ASIA	760.5	658.5	86.6	5174.0	2128.5	41.1
SOUTH ASIA	1734.4	804.9	46.4	13971.9	7889.5	56.5
TOTAL	3514.5	2202.9	62.7	19774.8	10263.7	51.9

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TABLE 7.1

Beneficiaries by Categories and Project Classification

	(000 families) BENEFICIARIES				(000 jobs) EMPLOYMENT						(000 individuals or * 000 student places) SOCIAL BENEFICIARIES				
	Direct		Indirect or other		Full-Time		Part-Time		Temp.	Com. Dev.	Health	Educ. *	Water	Voc. Traing *	Sm. Scale Elec. Ind.
	Total	Target	Total	Target	Off Farm	On Farm	Off Farm	On Farm	(000 MY)						
E. Africa - TOTAL	364.4	364.0	240.7	198.5	2.6	34.0	3.0	-	5.2	-	129.0	2.8	124.5	1.8	-
of which (Rural Dev.	352.6	352.6	239.1	198.5	0.7	34.0	3.0		5.2		129.0	2.8	124.5	1.8	
(Agric.	11.8	11.4	1.6	-	1.9	-	-		-		-	-	-	-	
W. Africa - TOTAL	204.1	167.5	210.0	-	0.6	23.9	1.0	-	40.5	6.0	22.0	6.0	22.0	70.0	-
of which (Rural Dev.	201.5	167.5	200.0		-	23.9	-		40.5	-	16.0	-	16.0	60.0	
(Agric.	2.6	-	10.0		0.6	-	1.0		-	6.0	6.0	6.0	6.0	10.0	
EMENA - TOTAL	333.1	102.2	132.9	33.3	44.6	86.0	-	42.0	409.6	-	-	-	404.5	-	-
of which (Rural Dev.	68.9	41.5	71.4	28.8	33.3	7.0		4.6	9.6				340.0		
(Agric.	264.2	60.7	61.5	4.5	11.3	79.0		37.4	400.0				64.5		
LAC - TOTAL	117.9	105.8	45.3	13.9	20.0	35.5	-	1.3	16.2	27.7	211.4	23.4	238.6	6.3	8.4
of which (Rural Dev.	104.8	100.6	45.3	13.9	17.45	29.0		-	11.7	26.2	209.9	21.9	237.1	6.3	8.4
(Agric	13.1	5.2	-	-	2.55	6.5		1.3	4.5	1.5	1.5	1.5	1.5	-	-
E. Asia - TOTAL	760.5	658.5	5,174.0	2,128.5	18.0	208.6	-	-	49.5	170.0	230.6	39.5	170.0	0.3	-
of which (Rural Dev.	736.4	656.1	134.0	88.5	18.0	207.6			49.5	170.0	230.6	39.5	170.0	0.3	
(Agric.	24.1	2.4	5,040.0	204.0	-	1.0			-	-	-	-	-	-	
S. Asia - TOTAL	1,734.4	804.9	13,971.9	7,889.5	52.10	194.5	-	37.2	293.5	-	735.0	16.0	346.0	-	9.1
of which (Rural Dev.	243.4	185.4	93.0	48.0	-	5.0		-	52.5		735.0	16.0	33.0		9.1
(Agric.	1,491.0	619.5	13,878.9	7,841.5	52.1	189.5		37.2	241.0		-	-	313.0		-
GRAND TOTAL	3,514.9	2,202.9	19,774.8	10,263.7	137.9	582.5	4.0	80.5	814.5	203.7	1,328.0	87.7	1,305.6	78.4	9.1
of which TOTAL Rural Dev.	1,707.6	1,503.7	782.8	377.7	69.4	306.5	3.0	4.6	169.0	196.2	1,320.5	80.2	920.6	68.4	9.1
of which TOTAL Agric.	1,807.3	699.2	18,992.0	9,886.0	68.5	276.0	1.0	75.9	645.5	7.5	7.5	7.5	385.0	10.0	-

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TABLE 8

ECONOMIC RATES OF RETURN ON
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

REGION	RATES OF RETURN NC 1/	10-19	20-29	30-39	40-49	50-59	60-79	80-99	≥100	TOTAL
EAST AFRICA	1	5	3	1	1	0	0	0	0	11
WEST AFRICA	2	8	2	0	0	0	0	1	0	13
NA	0	5	7	2	0	1	0	0	0	15
LAC	0	6	4	3	0	0	0	0	0	13
EAST ASIA	0	9	2	0	2	0	1	0	0	14
SOUTH ASIA	3	2	5	5	0	2	0	0	1	18
TOTAL	6	35	23	11	3	3	1	1	1	84

1/ Not calculated for: Somalia Extension and Training; Mali Technical Assistance/Engineering Credit; Nigeria Agriculture Management Training Institute; Bangladesh Fertilizer Import Credit; India National Agriculture Research and Composite Agriculture Extension projects.

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TABLE 9 :
MONITORING AND EVALUATION IN
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
FISCAL YEAR 79

REGION	TOTAL NUMBER OF AGR AND RD PROJECTS	NUMBER OF PROJECTS WITH M/E	% OF PROJECTS WITH M AND E	NUMBER OF PROJECTS WITH M/E COSTED	% OF PROJECTS WITH M AND E COSTED	TOTAL COST OF M/E COMPONENTS US $ MIL
EAST AFRICA	11	11	100.0	7	63.6	4.8
WEST AFRICA	13	9	69.2	6	46.2	6.4
ENA	15	14	93.3	2	13.3	1.3
LAC	13	13	100.0	5	38.5	2.1
EAST ASIA	14	13	92.9	3	21.4	.7
SOUTH ASIA	18	17	94.4	7	38.9	3.3
TOTAL	84	77	91.7	30	35.7	18.7

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S- Agriculture

Agriculture & Rural Development Division Chiefs August 1, 1979

Graham Donaldson, Chief, AGREP

Presenting Sensitivity Analysis Using Switching Values

During the last month we have received several requests for good examples of sensitivity analysis using the switching value methodology set forth in Central Projects Note 2.01. One such example is the sensitivity and risk analysis of the Nigeria Oyo North Agricultural Project which in an Annex presents key project parameters, their switching values, and the percentage changes, and in the main text discusses the subjective likelihood of these changes. I hope this example will prove useful for your staff.

cc: Messrs. M. Yudelman (AGR) H.G. van der Tak (CPSVP)
AGREP staff A. Ray (PAS)

GTemple:mt