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S - AGRICULTURE AND RURAL
DEVELOPMENT

1978/80

VOL. V



 **Archives**
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Operational Sectors - S - Agriculture and Rural Development 1978 - 1980 - Volume 5

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CLOSE - OUT SHEET

This file is closed as of Mar 31, 1979.

For further correspondence, please see vol VI.

RECORDS MANAGEMENT SECTION

March 30, 1979

Mr. Barry W. Paulson, Director
International Economic Studies Center
University of Colorado-Economics Building
Boulder, Colorado 80309

Dear Mr. Paulson:

I received your letter of March 14 and read, with great interest, the proposal on "Community Social Profile Approach to Rural Development". Rural development projects, supported by the Bank, have essentially similar approach with regard to plan, design and monitoring and evaluation. The major concerns in such projects are socio-economic conditions in the project area, constraints to development, exploitable resources; and the design of built-in monitoring and evaluation systems. Other multilateral and bilateral development agencies are increasingly focusing on projects designed to reach specified poverty target groups in rural areas of developing countries/and including monitoring and evaluation as an important element of project investments. Evaluation of rural development projects during implementation should be able to identify the current shortcomings in project designs and implementation and facilitate correction. Pragmatic action oriented research on issues you propose to explore should contribute to the growing rural development programs.

An area of major concern is the weakness in developing countries of institutional capability to plan, design and implement rural development programs and projects. Your proposal to assist local institutions to expand their capacity for rural development is important if the methodologies fit the target group approach, and focus on mechanism for sustained implementation--not just planning. We've seen too many good plans gathering dust on the shelf.

I shall be grateful to have access to the results of your research.

Yours truly,

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

TDavis:dcm

✓ S - Agriculture
cc ERIO - W

Those Listed Below

March 30, 1979

Ted J. Davis, Chief, RORSU

World Conference on Agrarian Reform and Rural Development -- "Draft Declaration of Principles and Programme of Action" -- Request for Comments

The World Conference on Agrarian Reform and Rural Development (WCARRD) will be held at FAO in Rome from July 12-20, 1979. The preparation for this World Conference has been underway for over two years and we have been cooperating with FAO to the extent possible without calling for major efforts from our staff. I have been the Bank's representative to two UN Inter-Agency preparatory meetings, as well as the big "Preparatory Committee" attended by some 700 government and agency representatives held during the week of March 12-16. I attach a copy of my Back-to-Office Report.

More important, I attach the *le S - Agriculture Document* "Draft Declaration of Principles and Programme of Action". The Bank's comments on this paper will be coordinated by me through the External Relations Department. The contents of these papers are global in their implications. Part 1 is entitled, "National Programmes of Action in Developing Countries", and Part 2 is entitled, "International Policies for Agrarian Reform and Rural Development". While I welcome any comments on any part of the papers, perhaps we should call specific attention to Para. XI, "Official Development Assistance", and Para XII, "Programme of Action for FAO in Cooperation with other Organizations of the United Nations Family". The content of these sections may lead to pressures on the scope and content of our own rural development lending program; on the other hand, they may lead to consciousness raising which could facilitate our country programming efforts.

The one issue that seems to be raising the most concern among UN Agencies is the language which calls on FAO (in cooperation with other UN Agencies) to monitor both capital assistance and technical cooperation flows from the donor agencies. Perhaps the language is too vague to know what the future implications are, but we do need to make the Bank's views known to FAO before this draft is finalized at the end of April. Therefore, if you have comments, could you please forward them to me no later than April 10.

Attachment

Distribution: Messrs. W. Baum, CPSVP; H. van der Tak, PAS; R. Dosik, CPSVP; Assistant Directors for Agriculture and Rural Development M. Yudelman, AGR; L. Christoffersen, AGR; D. Pickering, AGR; D. Turnham, AGR; G. Donaldson, AGR; M. Veraart, AGR; J. Marriam, IPA; Mrs. S. Boskey, IRD

TDavis:dcm

OFFICE MEMORANDUM

TO: Mr. Leif Christoffersen (AGR) (through Ted J. Davis) DATE March 30, 1979

FROM: Michael Cernea (AGR) *M Cernea*SUBJECT: Computerization of the Sociological Roster

1. This is to inform you that the computerization of our entire roster of consultant/sociologists has been completed. Our roster was thus incorporated in full into the Bank's computerized listing of consultants.
2. As you may remember, we started to develop our own roster about three years ago. In the meantime, we have identified about 160 development oriented and operationally experienced social scientists (sociologists and anthropologists), whom we have invited to join our roster. These roster consultants were recruited from about 40 different countries. Their expertise covers practically all sectors of agriculture and rural development and virtually all the geographic areas in which the Bank is operating (94 countries).
3. RORSU's roster has already proven to be highly useful for those agricultural divisions which have been interested in using sociological expertise. About one-third of our roster consultants have already been hired for short-term assignments in the last two-three years, with excellent results in most cases. The existence of the roster has greatly facilitated the identification and recruitment of consultants by interested divisions.
4. The computerization of the roster would further facilitate the use of the roster. We have worked out a classification by areas of sociological expertise, with particular emphasis on rural development issues. The Personnel Department has agreed to apply the classification system we proposed. We have also financed and supervised the coding of our files by the Personnel Department, in order to prevent errors and misclassification. Our cooperation in this respect with the Personnel Department has been excellent.
5. I believe we should find a way to inform the agricultural divisions about this improved facility available to them and use this as an additional encouragement for hiring sociologist/consultants.
6. I intend to pursue the identification of highly qualified potential consultants and to add them to the current roster, as I expect a continuous increase in the use of consultant/sociologists in Bank activities.

MCernea:dc

cc: Messrs. Yudelman, Pickering, R. Clarke, Ms. Stone Groen, Ms. Comia

DPA - Commodities
✓ cc. P. Agriculture

Patrick Yeung, EPDCE

March 29, 1979

Shamsher Singh, Acting Director, EPD

INTERGOVERNMENTAL GROUP ON MEAT, ROME, MAY 7-11, 1979 -- TERMS OF REFERENCE

1. You will attend, as Bank observer, the Eighth Session of the FAO Intergovernmental Group on Meat, Rome, 7-11 May 1979. Since there has not been a meeting of this Group for over a year, you will pay special attention to the discussions on the recent developments of the meat sector.
2. Regarding the item on "recent international activities bearing on livestock and meat", the Bank has been invited to report on its activities in fields of interest to the Group. The statement you will use will essentially be our reply (January 30, 1979) to the FAO Secretariat's request. (attached).
3. You will prepare a brief back-to-office report after your return to headquarters.

Attachment

cleared with and cc: Mr. Choeng Chung, Acting Chief, EPDCE
cleared in substance and cc: Mr. H. Yudelman, Director, AGR

PYeung:db

*Non-Regional
File*

OFFICE MEMORANDUM

TO: Mr. F.L. Hotes (AGR/CPS)

DATE: March 29, 1979

FROM: J.C. Collins (AGR/CPS) *JCC**S. Aguilera*SUBJECT: Some Thoughts Arising Out of Papers on Irrigation Crop Production Functions

1. The effects of a water availability constraint on crop yield may be divided into two, namely, those which are characteristic of the plants themselves and those characteristic of the environment in which they are growing. The difficulty experienced in attempting to maximise yield per unit of water results from the difficulty of forecasting with any degree of precision how these effects will combine and interact in any particular situation and in the absence of data obtained under precise local conditions.

2. The characteristics of the plants include:

- (a) Drought Resistance - the ability of the particular species and variety to undergo periods of physiological wilting without impairing its ability to resume normal growth and reproduction processes subsequently. While photosynthesis will be drastically reduced or cease in the wilted condition, this may not have a serious effect on yield providing subsequent recovery is rapid and complete;
- (b) Physiological Growth Stage - plants often are particularly sensitive to moisture deficit conditions at particular stages in their development---germination, flower bud initiation, flower opening, pollination, seed setting, etc. The time when a deficit occurs can, therefore, be a major factor in determining whether the effect on yield will be large or small. As the change from one growth phase to another can take place over a very few days for an entire crop plant population, it would be very difficult to forecast the occurrence of a water deficit sufficiently accurately in a model;
- (c) Leaf/Root Balance - the effect of a moisture stress condition in the soil will depend on both the degree of stress and the rate of which the plant can remove water against that stress to prevent wilting. Water loss from a turgid plant under a particular set of climatic conditions will be a function of its leaf area. The rate of extraction of moisture from the soil to balance that loss will be a function of the area of root hairs in contact with soil in which moisture is still available (i.e. soil moisture stress has not yet reached a level which prevents water movement into the root hair). As the leaf/root balance changes during crop growth so will the plant's sensitivity to changes in soil moisture stress. This will be further complicated by the ability of the plant to exploit deeper soil horizons in search of moisture under drying conditions, and the rate at which a drying front in the surface soil extends downwards to overtake exploiting roots.

3. The characteristics of the environment include:

- (a) Exploitable Soil Depth - the depth to which crop roots may be expected to penetrate in search of moisture under drying conditions. It may be significantly deeper than roots would normally penetrate in large numbers were the soil to be maintained at or near to field capacity. The limit may be a physical barrier, e.g. a compact horizon, or may be the result of gradual physical or chemical changes with increasing depth. In the latter case the limit may not be very clearly defined and could be influenced by soil conditions, e.g. reducing conditions due to a period of waterlogging, or cultivation practices;
- (b) Soil Structure - root development will, in general, be better in a rather coarse, open well drained and aerated soil. This same more extensive root system can more rapidly deplete moisture reserved and, because of the low available moisture-holding capacity of coarse compared with fine-textured soils, the onset of severe stress will occur much more rapidly in the former than in the latter, leaving little margin for error in the timing of irrigation applications.
- (c) Soil Chemical Characteristics - rate of root development will be considerably influenced by the chemistry of the soil and soil moisture. Furthermore, the presence of toxic ions will inhibit root development;
- (d) Past Weather - The past weather will have been a major factor in determining the rate of development of the plant and, in particular, air and soil temperatures will influence leaf and root development rates respectively;
- (e) Past and Current Rate of Evapotranspiration - There is evidence for the existence of an upper limit for evapotranspiration beyond which the plant is unable to abstract water from a soil even at field capacity sufficiently rapidly to meet the demand. Furthermore, the rate at which a crop abstracts moisture from the upper layers of the soil and, as these dry out, from successively deeper layers, will determine how rapidly the drying front proceeds downwards and whether or not exploitive root growth into deeper horizons can keep pace;

4. This is not claimed to be a complete list. However, I think it illustrates the complexity of the problem, bearing in mind the inherent complexities of the plants and soil themselves within which these characteristics manifest themselves. If crop production functions are to be of use, they must enable us with some confidence to make statements of the kind:

"At geographic location A, where soil conditions $S_1, S_2, S_3 \dots S_n$ prevail and where climatic conditions $C_1, C_2, C_3 \dots C_n$ can be expected in, say, 4 years out of 5 during growing season of crop B, the application of irrigation water X days beyond the presently practised interval during growth stages b_1 to b_2 and b_3 to b_4 will not result in yield reductions in excess of Y and by saving V volume of scarce water will be economically worthwhile."

I just do not believe that we can make predictions of this level of reliability without a considerable amount of test data for the area and crop in question. While it would appear highly desirable on equity grounds to save, say, 10% of design water delivery at the season of peak demand in order to serve 10% more farmers year round, it is only so if the anticipated yield reduction is low and the probability of the forecast being correct is high. The occurrence of a set of circumstances resulting in severe losses in a particular year from such a design modification could be disastrous for all the participants, and this must be guarded against.

5. It seems to me that we could go a very long way towards increasing water use efficiency by means other than placing design limitations on water transport systems. With present water use efficiencies, derived from studies of delivering systems in developing countries at 40-50% and even lower, enormous opportunities exist for savings through:

- (a) improved management to cut down:
 - (i) transmission losses through better maintenance, weed control and water scheduling; and
 - (ii) on-farm losses through better extension and training coupled with water pricing incentives;
- (b) better drainage, water collection and recycling systems and the development of wells to recycle deep percolation losses.

These would probably permit expansion of irrigation service to a larger number of farmers than would be possible through reductions in peak design capacities of systems and with no accompanying yield penalties. Indeed, some of the measures might well result in an appreciable yield improvement. I think it is significant that Hagan, in a recent paper^{/1}, cautions the reader on interpretation of preliminary data presented from research on the effects of deficit irrigation regimes on corn yield. He recognises, however, that in some situations, where water availability will decline in the future, there is possibility to develop water management strategies to optimise production from limited water supplies. The need to maintain at least sufficient deep percolation to prevent salinisation of the root zone must be stressed.

^{/1} Hagan, R.M. "Water Management: Some Effects of New Societal Attitudes", American Society of Agronomists, Spreck Publication No. 26, 1976.

6. Until the average irrigation farmer in the developing world has a much better understanding of plant/water/soil relations and their implications for irrigation management and until other means of inducing increased overall water use efficiency have been exploited, I would suggest that proposals to limit water deliveries to anything less than the total crop requirement determined by conventional methods be treated with extreme caution.

JCCollins:rm

cc: Mr. W. Peters (AGR/CPS)

Mr. Ducksoo Lee, Chief, ASPAD

March 27, 1979

T. David Hodgkinson, ASPAD *THH*

International Aquaculture Symposium, March 19-21, 1979
Woods Hole Oceanographic Institution
Availability of Conference Papers

1. I attended the above-mentioned conference and brought back a set of conference papers, some of which may be of interest to other Bank staff.

2. As indicated below, many of the papers are country or project-related, while others deal with general aquaculture policy issues.

Country/Project-Related Papers

- Costa Rica - Strategies for Aquaculture Development in Costa Rica and Factors that Limit their Expansion
- Egypt - Aquaculture Policies in Egypt
- Indonesia - Brackish Water Aquaculture Development in Northern Sumatra
- Israel - Fish Culture in Israel as a Cash Crop Model
- Nicaragua - An Analysis of the Proposed Puerto Morazan Shrimp Culture Project
- Sierra Leone - Oyster Culture in Sierra Leone

Policy Papers

- Allocation of Aquaculture Resources
- The Rationale, Promise and Realities of Aquaculture: A Cultural-Nutritional Perspective
- Aquaculture Development in Rural Atomistic Societies
- Social Science Issues for Aquaculture Planners
- Sociocultural Aspects of Implementing Aquaculture Systems in Marine Fishing Communities

In NRIC
- "World-480"
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4/24/79

APR 04 1979

3. Those interested in obtaining copies of the above-listed papers should contact Mrs. C. Heron, Extension 74797.

cc: Messrs. Pickering, Thoolen, Donaldson, Sprague, Kada, Sfeir-Younis, Schebeck (AGR), Haasjes (LCP), Naylor (EMP), Wadsworth (AEP), Peberdy (WAP), Frank (EMP), Tang, van Santen, Reidinger (ASPAD)

TDHodgkinson/cgh

March 27, 1979

S. Agriculture

Mr. Jean-Jacques Schul
European Investment Bank
Boite Postale 2005
Luxembourg

Dear Jean-Jacques:

The "Guide to the Economic Evaluation of Irrigation Projects" arrived several hours ahead of your nice letter of March 19, 1979, and for a while I was perplexed, wondering if Dr. Bergmann had sent them. I had just met him earlier in the month in Rome at an FAO Expert Consultation on Land Classification but did not have an opportunity to talk to him. In any event, I was delighted to hear from you and to receive the copy of what appears, from a very quick initial perusal, to be an excellent publication.

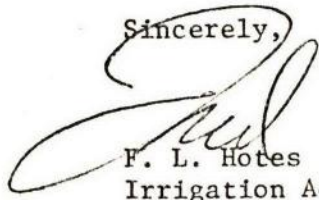
Your comments on the usefulness of having some uniformity in presentation are worth serious consideration on our part, especially in view of your own past Bank service. I have passed the copy to Graham Donaldson, Chief of Economic Division AGR/CPS, and we will be discussing it further to see to what extent this idea can be meshed with our APAS and CB DISPLAY programs (copies under separate cover) and other procedures.

Many thanks for your help. I am still hoping to stop by to see you and some of your colleagues involved with irrigation projects. Maybe I can do this in June enroute to Roumania.

Forwarded under separate cover also is some informal information on drip irrigation. If you have any economic analyses of such installations and/or ex-post evaluations, we would be most appreciative of receiving a copy. They seem to be very rare documents.

Some other memoranda are enclosed in the separate cover, which may be of interest to you.

With all best wishes, I am

Sincerely,

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

- Under Separate Cover:
Users Guide to CBDISPLAY, 3/25/79.
Irrigation Crop Production Functions, 2/12/79.
Mechanized Irrigation in Developing Countries, 7/26-28, 1978.
On-Farm Irrigation Costs, 6/1/78.
Information Note on Drip Irrigation (CONFIDENTIAL), May 1977.

FLHotes:rm

cc: Messrs. Yudelman, Pickering, Donaldson (AGR/CPS), w/o enclosures.

OFFICE MEMORANDUM

F338
YELLOW
NON-REG.

TO: Mr. Donald Pickering, Assistant Director, AGR

DATE: March 27, 1979

FROM: Graham Donaldson, Chief, AGREP *GD**S. Agriculture*SUBJECT: APAS - Management Responsibilities

1. In accordance with his wish (see attached memorandum) Jim Goering will relinquish responsibility for APAS development and support as of April 20, 1979. He will pass responsibility to Gordon Temple, who will henceforth have charge of all Division computing activities, except where individual research activities of other Division members are involved.

2. I would like to acknowledge the substantial contribution of Jim Goering, and the able assistance of his several colleagues as identified, in steering APAS into its operational phase.

cc: M. Yudelman
P. Richardson
T.J. Goering
G. Temple
Other AGREP Members


D. Rix
P. Hamsher
V. Sahasrabudhe
H. Kim
Y. Kimaro
N. Pinto

GDonaldson:mt

OFFICE MEMORANDUM

TO: Mr. Graham Donaldson, Chief, AGREP

DATE: March 26, 1979

FROM: Jim Goering SUBJECT: Relinquishment of My Responsibilities in the
Development and Introduction of APAS

1. You will recall that in June 1977, I was asked to take over the divisional responsibility for the development and introduction of APAS. In the intervening months, I believe good progress has been made. This is due in significant measure to fine technical support from Hyung Kim, Young Kimaro, Nancy Pinto and others in the division, as well as good collaboration with David Rix, Patty Hamsher and Vikas Sahasrabudhe of CAD. During these months, this AGR/CAD group has:

- identified, introduced and tested one set of enhancements to APAS and identified a second set for possible completion in FY1980;
- set up, and maintained regular contact with, a 6-member regional APAS Advisory Group to better represent regional interests in APAS development;
- completed a major rewrite and two subsequent minor revisions of the APAS Users' Guide;
- carried out two 12-hour APAS training workshops for 28 project staff (and organized a third workshop for April);
- completed the acceptance testing phase of APAS development; and
- provided back-up support to facilitate the use of APAS in some 17 project appraisals.

2. The development work on APAS is now entering a somewhat different phase, with greater emphasis on "fine-tuning" enhancements and a focus on integrating APAS with CB/Display and Project Processor. These efforts can undoubtedly be carried out most effectively under single leadership and by one with greater technical competency than I have in computers and programming. I therefore request that I be relieved of the responsibility for administering the divisional work as it pertains to APAS development. My preference would be to relinquish this responsibility immediately after the third training workshop is complete, i.e., about April 20. Of course, I would be willing to assist in APAS development on an ad hoc basis in future months if a need should arise. As part of this change in responsibilities, I also ask to be relieved of my assignment as member of the Task Force on Application of Computing Techniques to Project Work and as chairman of the Agricultural Sub-group of that Task Force.

TJG:vau

✓ ER10-W
cc. 5 - Agriculture

Mr. McNamara

March 26, 1979

Shirley Boskey, Director, IRD (through Mr. W. Clark)

World Conference on Agrarian Reform and Rural Development

The World Conference on Agrarian Reform and Rural Development will be held in Rome this summer, July 12-20. This Conference, organized by FAO, has been several years in the making. The Bank has provided documentation for it and has actively participated in preparatory work. It will be a major conference, one of interest to many organizations of the UN system (some 15 took part in the most recent preparatory meeting earlier this month) - as well as to other inter-governmental and non-governmental organizations.

Delegations to the Conference will be high-level. A number of agency heads are planning to attend the opening sessions of the Conference. The Secretary-General of the Conference told the Bank's representative at the March preparatory committee meeting that he very much hoped that you would address the opening session.

I have talked with Monty Yudelman about this. We both feel that the Conference affords an appropriate occasion and an appropriate forum for a major statement by the Bank. Would you consider stopping in Rome on your way to Romania/Yugoslavia to address the Conference? I am sure that if you were willing to do so, arrangements could be made for you to speak on the Friday, the second day of the Conference (unfortunately, Friday the 13th). There would be no interference with your Romania/Yugoslavia schedule.

The Bank should, in any case, be represented at a high level. While Monty will spend some time at the Conference and could, if necessary, make a statement for the Bank, he feels, and I agree, that it would be better if a more senior official made the statement. If you conclude that you cannot address the Conference yourself, we hope that you would agree that one of the Vice-Presidents, preferably a Third Worlder, might do so.

SEBoskey:jfh

- c.c. Mr. Yudelman
- Mr. Boucher
- Mr. Burney, Geneva

OFFICE MEMORANDUM

DATE: March 26, 1979

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

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

*S. Aquilino*SUBJECT: Operation and Maintenance of Irrigation Projects

1. For some time I have been concerned about the generally poor operation and maintenance (O&M) of irrigation projects which the Bank has helped finance or is helping to finance, as well as other irrigation projects in the developing countries. This concern stems from information obtained from supervision, appraisal and completion reports, oral communications from staff, and personal observation. It appears to be especially critical in countries with severe shortages of project and/or public revenues, such as Bangladesh. Subnormal O&M efforts and results occur despite the covenants appearing in all project legal documents, in which the Borrower or Project Authority agrees to maintain the works in accordance with normal engineering standards.
2. In the last issue of "Finance and Development", an article written by an IMF staffer appeared on the subject but covered a wide range of project types. It is a good article. In discussing Bangladesh Water Development Board problems with Warren Fairchild, ASP, who has been leading the Bank review work of the Board, O&M aspects came to the fore, and it was suggested that the possibility be explored of preparing a ten-year O&M project for the Board on a nationwide basis. His subsequent memorandum is attached, together with a copy of a March 12, 1979, draft report by TRP/CPS on "The Highway Maintenance Problem." A copy of this memorandum and attachments are being circulated to CPS advisers for discussion at our April 11, 1979, meeting with you. (Do not circulate Fairchild memorandum.)
3. I would like to see a paper similar to the TRP draft prepared for Irrigation Projects. It would differ in many respects from the TRP paper, primarily in that maintenance and operations would have to be treated initially somewhat separately and then together. I would like to see the economic benefits of irrigation project maintenance demonstrated in an initial paper. I am not aware of any papers or publications focusing on this point. From there, we could proceed to blend in the results of our ODI and McSwain studies.
4. In the meantime, I think it might be worthwhile to circulate the TRP draft among the Regions and to solicit comments on the desirability, or need, to look for ways to improve O&M in irrigation projects, perhaps by means of O&M projects.

Attachments

FLHotes:rm

cc: Messrs. Darnell, Fransen, Gray, Spall, Spears, Turnham, Donaldson, Collins, Russell, Naseem, Sutherland (AGR/CPS)

OFFICE MEMORANDUM

TO: Mr. K. Pranich, Chief, ASPAA

DATE: March 16, 1979

FROM: Warren D. Fairchild, ASPAA *WDF*SUBJECT: BANGLADESH: Water Sector Operation and Maintenance Proposal

1. The purpose of this memo is to "float" some preliminary views for a project proposal for an O&M program for schemes of the Bangladesh Water Development Board (BWDB).
2. A major finding of the Joint GOB/World Bank Review of BWDB was the sizeable disinvestments occurring to water sector facilities because of inadequate O&M. The Green Cover Report (January 16, 1979) recommends that a member for operation and maintenance be added to the Board with assignment of appropriate staff and adequate funding (see para 3.33 and 4.29). It was further recommended that the field organization be re-organized to facilitate a strengthened O&M program. GOB officials (including BWDB) concurred in these recommendations, which will now be included in the Final Joint Report.
3. Without affirmative action by World Bank, I fear that the follow-through to fully implement this institutional improvement on O&M by GOB will be of little more consequence than past efforts to implement the O&M covenants found in the various Development Credit Agreements. Under the current fiscal environment in Bangladesh, when the "push comes to shove," such items as O&M in the annual recurrent budget will come out second best to the annual development budget.
4. I find an analogy between this situation and that outlined in a draft report (March 12, 1979) prepared by the World Bank Transportation Department (TRP), "The Highway Maintenance Problem" (copy attached). (I am also attaching copy of an article, "The Underfinancing of Recurrent Development Costs," published in the March 1979 issue of "Finance and Development"). The TRP draft document traces past World Bank lending programs and policies on Highway O&M. Because of continuing deficiencies in O&M (particularly in the developing countries with the severest financial constraints), this report advocates a broadened World Bank lending policy to include not only institution building for O&M, but participation by World Bank on a declining basis for recurrent O&M costs.
5. Agreement by BWDB to strengthen its O&M institutional arrangement is a good first step, however, without adequate manpower and funding this organizational improvement would probably be of little consequence. With BWDB desire to improve its O&M function, I would propose that the World Bank move expeditiously to assist in equipping and funding this organization. Such assistance, (based upon a project proposal) would be in the form of an IDA credit. Such a credit could include funding for required equipment, facilities, repairs, spares, and materials as well as a training component for personnel and financing a portion of recurrent costs on a declining scale over a period of 10 years. This proposed credit should include covenants on the continued and required O&M funding as well as implementing increased cost recovery from water sector schemes to cover such O&M costs (see para 4.35 of the Green Cover Report). This credit should serve as "seed money" in developing

an O&M institution with the stature that would afford likely assurance of its continuity as a viable and effective organization.

6. Currently, BWDB's O&M requirements for irrigation are small (150,000 ac), but they will grow substantially in the next few years. Many of its flood protection and drainage facilities require immediate attention with some deteriorating to the condition that they now require rehabilitation. Now is a good time to cooperate with BWDB in developing its O&M program because it can develop with the growth of the BWDB program and be phased and funded accordingly.

7. As a supplement to this program, an expanded program should be updated to rehabilitate existing BWDB facilities to get them up to a satisfactory operating level. This also should be a priority for World Bank and other donor agency lending. A start on this program for smaller rehabilitation projects can be covered under the proposed sector credit for small schemes.

8. I strongly recommend that the World Bank consider an O&M program for BWDB administered facilities somewhat in line with the March 16 TRP draft report. Such a program would be quite small--possibly US\$25 to 30 M over a period up to 10 years on a declining basis. We cannot be assured that such a program will result in a strong continuing program, but the likelihood of success is better than the current scenario that generally follows the script of: (a) new scheme, (b) deterioration, (c) rehabilitation, (d) deterioration, (e) - - - -. Such an O&M program should have priority for World Bank lending over new schemes and with reasonable success will improve the efficiency and effectiveness of such schemes. As indicated in the TRP Report, the ROR for O&M projects are generally considerably higher than for new schemes.

9. I would propose that such a program be discussed with GOB and BWDB officials in the near future as a followup to the final report of the Joint GOB/World Bank Review of BWDB. Such a program could be initiated as early as FY 1980/81.

10. Conceivably, such a program may be required also in Pakistan. Experience in Bangladesh, where the need is greater, would so indicate. In the meantime, I would not propose that the upcoming Pakistan O&M program for flood control and drainage facilities should include recurrent cost for World Bank lending. However, such recurring costs should be included as part of the project costs to be borne by GOB and the Provinces. The other components, i.e., facilities, equipment, spares, materials, training, etc., should be considered for funding under the proposed credit.

Attachments

WDFairchild/km

THE HIGHWAY MAINTENANCE PROBLEM

Transportation Department
The World Bank
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The Highway Maintenance Problem

MAJOR ISSUES

There is abundant evidence, supported by recent research, that the economic return from maintenance of existing highway infrastructure is extremely high. Yet establishing adequate maintenance has proven to be the most difficult area in highway development and the Bank's lending therefor.

The causes of poor maintenance performance are complex and interrelated:

- Governmental authorities have erroneously viewed maintenance efforts as low priority and easily postponable so that budget allocations are often too low. (Paragraphs 2.09-11, 2.24-25, 3.06)
- Difficulties in recruiting, training and retaining qualified and motivated staff, at both managerial and vocational levels, severely hamper maintenance activities in most countries. (Paragraphs 6.01-6.02)
- Maintenance operations, being small scale and widely scattered, are inherently difficult to manage and prone to inefficiencies; in fact maintenance is more a managerial than an engineering problem. (Paragraphs 7.01-7.06)
- Inadequate domestic financing mechanisms, uneven supplies of spare parts, fuel and materials, and delayed renewal of equipment frequently undermine the efficiency of operations. (Paragraphs 5.01, 5.10, 5.15)

The main steps to be taken to improve the situation are:

The Bank should broaden its efforts to disseminate information to borrowers and co-lenders on the economic priority of maintenance and foster improved attitudes and planning procedures. (Paragraphs 3.09, 4.05, 5.11-12)

The guiding principle of Bank efforts should be to develop local capacity for planning and executing comprehensive, well balanced programs with an appropriate blend of routine and periodic maintenance and capital rehabilitation and strengthening. This will imply that the Bank should:

- Continue to seek more specific, stronger agreements with its borrowers on the financing of maintenance programs, on Action Plans to remedy operational deficiencies, and on terms of reference for technical assistance and training programs. (Paragraphs 5.23-25, 7.13-14, 9.02-03)
- Be prepared to finance, on a declining basis, a proportion of the incremental recurrent costs of an expanded maintenance program during a period of institution building in a few of the poorest countries. (Paragraphs 5.06-16)
- Give particular attention to more effective equipment management and appropriate accounting mechanisms. (Paragraphs 5.17-21, 7.14)
- Further increase the emphasis given to borrower's training programs and, especially, their continuity. (Paragraphs 6.02-04, 6.14-15)

Simplified management systems, emphasizing field inspection, equipment performance, and small cost improvement studies, should be encouraged. (Paragraphs 7.04-10)

Competitive tendering and contracting of maintenance activities should be considered where feasible; contractors are often more cost effective and the small scale and continuous nature of maintenance activities provides an excellent vehicle to foster local contracting industries. (Paragraphs 8.02-05, 8.12)

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OVERVIEW AND SUMMARY

- i. Among problems in the growth of countries' highway transport systems, development of effective highway maintenance is one of the most important and the most intractable. It has increasingly come to the fore in the developing countries since the completion in the late 1960s and early 1970s of extensive additions to national trunk networks, and with the aging of earlier-built sections. Current construction of large amounts of secondary and rural roads adds to the maintenance workload. Countries are increasingly recognizing the importance of maintenance and coming to the Bank for assistance.
- ii. While the Bank has long been concerned with the maintenance problem and the development of maintenance systems, its experience -- equally of projects specifically devoted to this purpose as with maintenance covenants in highway construction loans -- also shows that building up the necessary institutional capacities is much more difficult than building road networks. No maintenance development effort with which the Bank has been involved was foreseen as being more than ten years in duration. Yet none has taken less than ten years in practice.
- iii. The purpose of this paper is to distill the results of the Bank's experience, and of the research that it has done over the last ten years on highway construction and maintenance economics, with a view to identifying approaches and solutions that seem to work better than others. The focus is mainly on the still unresolved problems of national highway maintenance; rural roads often require approaches mobilizing more local or regional capacities and resources, but they too can benefit from many of the measures suggested.
- iv. The history of the Bank's involvement in highway maintenance is one of increasing emphasis in its highway operations on this problem area, and increasing specificity in maintenance covenants, maintenance projects and consultant terms of reference. The general conclusion of the current review is that this same trend should be further extended, in full recognition that the maintenance problem is structural and institutional. The justification for Bank financing in this area is not so much the expected physical impact of the hardware provided as the contribution such lending, and related arrangements, can make to building up the institutional framework for adequate performance of maintenance on a continuous basis.
- v. Highway construction and maintenance form an integrated cycle over time that needs to be adjusted to the conditions of a particular road, its physical state and traffic growth. Earth roads need routine maintenance (i.e. operations repeated one or more times every year), such as ditch cleaning, pothole filling, grading and vegetation control. Normally it is worthwhile to construct the road to gravel standard when traffic reaches 15-40 vehicles per day. Regular routine maintenance continues to be needed, and in addition periodic maintenance (i.e. operations repeated every five to ten years) in the form of regravelling. Construction to paved standards is normally warranted at traffic volumes of 200-500

vehicles per day. Routine maintenance then includes patching of cracks, and periodic maintenance takes the form of bituminous surface dressings or seals. A further type of operation, partially substituting for maintenance but substantially improving the road, is upgrading or betterment, such as asphalt overlays and minor drainage and alignment improvements. Finally there is maintenance of the equipment used for maintenance itself.

vi. Many countries have tried to economize by adopting time-staging strategies for paving, i.e. starting with a relatively low-cost pavement and strengthening it over time as traffic grows. The Bank's research on alternative highway construction/maintenance strategies suggests that while this is theoretically the best approach, it can easily turn out much more costly (in terms of present worth of total costs) if subsequent maintenance does not reach the high standards and timeliness assumed. Vehicle loading much beyond legal limits is also widespread in developing countries, particularly on main roads, and can do severe damage to pavements. Thus new construction needs to take careful account of these risks of vehicle overloading and inadequate maintenance, while pavement underdesign in the past makes maintenance and overlays or other strengthening measures even more important than otherwise.

vii. The Bank lends in support of national or regional maintenance programs or parts of them -- such as routine maintenance systems, periodic gravel road maintenance, or equipment maintenance arrangements. One aspect of program formulation is to minimize the economic costs of each type of operation, for example emphasizing efficiently run, labor-intensive techniques where unskilled labor is plentiful. Another aspect is to get the best combination of the different operations on the various classes of road in the network, in principle carrying each activity to the point where it yields a marginal return equal to the opportunity cost of capital. To avoid low-priority operations hidden within a broader program, it is helpful to consider what amounts of which operations would be sacrificed in the event of, say, a 20% cutback in annual appropriations for maintenance operations, and what would be added with a 20% increase, and then to determine the returns to these decremental and incremental expenditures.

viii. The resultant savings in vehicle operating costs, particularly in vehicle maintenance and tire wear, are normally of overriding importance within the total returns to maintenance expenditures. These savings are estimates on the basis of road tests and user surveys regarding operating costs on roads in different condition, plus surveys and inventories of the state of the network and assessment of the improvements that different maintenance operations will bring about. Other important benefits are postponements of major expenditures that would otherwise become necessary for rehabilitation and reconstruction, and avoidance or reduction of road closures, for instance of unpaved roads in the wet season.

ix. Recent Bank experience shows that the estimated overall economic returns to proposed maintenance projects are very high, and higher than those for proposed road construction projects: an average of 40% or higher, for instance, over eight major maintenance schemes supported by loans in FY 1978, compared with an average of 24% for all the new construction for which the Bank made loans in that year. High returns seem actually to have been achieved too. Completed maintenance

projects show returns at ex-post audit that are sometimes several times the opportunity cost of capital and only very rarely beneath it, even in cases where physical achievements fell substantially short of forecasts. Basically the high returns reflect the great profitability of small expenditures to maintain the full service value obtainable from very large earlier investments in construction. But they also suggest that some shift of additional resources into maintenance would be worthwhile in many countries.

x. The broader purpose of the Bank projects is to enable this to be carried through effectively, and then sustained. The problems are generally much more than can be dealt with simply by a covenant requiring good maintenance or adequate funding. In a few countries one constraint -- such as insufficient budgetary allocations, inefficiency in use of available resources, or inadequate staff -- is clearly dominant. But in most the situation is much more complex. Budgetary allocations are insufficient in part because the Finance Ministry has low faith in the efficiency with which the funds will be spent. Existing inefficiency is often closely connected with poorly trained, motivated and organized staff, and diversion of their efforts to other works. These deficiencies result in part from inadequate incentive structures and shortage of financial resources. Yet it is not worthwhile -- and may not be politically possible -- to loosen the financial leash unless efficiency improves. In many countries there is at one and the same time both need for additional regular funding and scope for cost reduction.

xi. Capacity building is in some ways a better description of what needs to be done than institution-building, due to the narrow interpretation sometimes given the latter expression. Creation of legal and administrative structures and institutions, clarifying responsibilities for maintenance in general or particular parts of the task, is an area where the Bank projects have had the least difficulties. Such reorganizations have often been delayed, but they have usually been done. The problems have arisen more in filling out the new organizational structures with adequate staff, developing the necessary discipline and sense of responsibility, providing needed operating funds and reaching an effective day-to-day functioning on a countrywide basis.

xii. The main burden of this type of work within a Public Works Ministry is normally carried by a few key nationals -- whose dedication and leadership can often make the difference between success and failure -- and by the foreign consultants and technical assistance whose role has been vital in such advances as have been made in almost all Bank-supported maintenance projects. The consultant job in maintenance is difficult and delicate. It involves local attitudinal and cultural factors as much as technical ones. Also, a careful balance has to be maintained among the many resources assembled to perform maintenance, many of which, like attitudes and staff capacities, have to be developed gradually. The absorptive capacity for consultants and technical assistance can itself increase over time. Thus maintaining a good balance is partly a matter of foresight by the consultants assisting the program, and partly one of defining and structuring their terms of reference and the physical components of the project realistically -- in many cases phased over longer time periods than previously thought.

xiii. A central task in capacity-building, but one where the appropriate balance has been particularly difficult to achieve, is staff training. The Bank has been ahead of many other foreign assistance agencies in supporting such

training, through financing for physical facilities, training equipment, foreign trainers and overseas scholarships. It is continuing to deepen its involvement. Past programs have often been too small, too partial, too desk-dependent or too unrelated to the real starting point of existing staff. Proper planning has to be based on a comprehensive, forward-looking analysis of the prospective balance between changing skill requirements, at different levels and in different specialties, and prospective availabilities from existing sources; allowance has to be made for typical high losses of staff to the private sector. This requires an early appraisal and inventory of staff and their educational attainments, just as engineering works require collection of basic data on soils and hydrology.

xiv. To give it sufficient continuity, status and weight in broader policy making for the highway department, the whole function of training or staff-development, for all levels from senior engineers and managers to patrolmen and drivers, needs to be institutionalized. Training efforts have too often been seen as one-shot affairs, without allowance for the fact that 10% or more of the staff may need to be replaced each year due to retirements and losses to the private sector, and that remaining staff may need recycling. Modern maintenance training programs supported by the Bank usually provide for at least brief training of between one-tenth and one-fifth of total staff above the grade of laborer each year. Most countries have by now set up training sections in their Highway Departments, but many of these need upgrading to higher administrative standing.

xv. Discontinuity of training efforts has been an unfortunate and frequent problem in the past. It would be highly desirable for the Bank to find administratively simple means for providing on a last-resort basis the small amount of financing sometimes required to sustain efforts between completion of one project and initiation of another. This could be through the Project Preparation Facility or other similar arrangement.

xvi. With reasonably efficient operations, the total amount of money required for maintenance of the highway network is not very great. Some 2%, or slightly less, of the road capital stock (replacement or updated original investment value) is generally sufficient to cover a year's requirements for routine and periodic operations as well as maintenance and renewal of the equipment involved. This seldom represents more than a fraction of annual government revenues from road users and, provided it is efficiently spent, almost immediately repays itself several-fold.

xvii. But the funds do need to be provided on a regular and timely basis, even in face of sharp budgetary fluctuations. If they are not, then the costs to the country -- first in the form of extra operating costs (with a substantial foreign exchange component) for road users, and soon after in the form of claims on the public fisc for rehabilitation and reconstruction -- become much higher. New construction can be postponed during periods of financial stringency, but very little maintenance can be. Experience with automatic mechanisms, such as Road Funds, for channelling sufficient resources into road maintenance has not generally been good. The solution to the problem is more a matter of fiscal and administrative discipline and advance planning, and wider recognition of the economic importance of maintenance.

xviii. Sub-Saharan Africa faces special problems because of the sparseness of population relative to the large size of the countries and of the heavy dependence on foreign economic assistance. On the one hand, it is already devoting to road maintenance twice as high a proportion of national GDP as developing countries in other regions, while minimally adequate maintenance would require it devote 50% more, or three times as much as other countries. On the other hand, foreign assistance agencies working in the highways field have generally been prepared to cover about three times as high a proportion of the total costs of road construction (and reconstruction) as of road maintenance projects; this in turn creates some bias against maintenance under circumstances where foreign aid is such an important factor in total public expenditure allocations.

xix. The Bank's policy in financing of maintenance, in Africa as elsewhere, has generally been to lend for capital expenditures, roughly defined as those that yield benefits over a five-year period or longer. This has meant in practice that the Bank has lent readily for technical assistance and training, construction of workshops, procurement of maintenance equipment, rehabilitation of existing equipment, initial inventories of spare parts and any periodic maintenance operations, whether carried out by force account or by contract. It has thus been able to lend -- and in Africa has lent -- for a considerably higher proportion of the total costs of maintenance projects than most other aid-suppliers have normally done. On the other hand, like them, it has very seldom lent to cover any part of the operating costs of routine maintenance.

xx. The Bank's approach reflects the basic proposition that ultimate responsibility for maintenance, including in particular the recurrent costs of routine operations, should be that of the borrower. The Bank's reluctance to finance such recurrent costs has undoubtedly strengthened financial/administrative discipline, and resulted in increased Government support for these expenditures, in many countries.

xxi. But this policy has at times been in conflict with the basic capacity-building purpose of the Bank's lending for maintenance, and may to some extent have inhibited an appropriate Bank/borrower focus on building up routine maintenance capacity where this is the most critical need. Where budgetary constraints are as tight as in many sub-Saharan African countries, this stringency has sometimes led to personnel and equipment lying idle for long periods for lack of fuel, materials and spares. Also, in many countries, regular government funding is most critically needed for keeping spare parts inventories at a satisfactory level, but the short-run injections of spares sometimes financed by the Bank have not contributed substantially to a more permanent resolution of the problem.

xxii. Therefore, the focus of Bank lending should be on the overall objectives and priorities of maintenance programs and the build-up of local efforts and institutions to the most cost-effective combination of routine and periodic maintenance, equipment maintenance and renewal. Emphasis should be placed on the increase over time in the proportion of total maintenance outlays (capital as well as recurrent) financed domestically, but the particular application of Bank/IDA funds within the maintenance field would be chosen by reference to what would contribute most to strengthening the effectiveness of the maintenance institutions. In special cases (e.g. poor countries in Africa) where an expanded Government financial commitment is being asked for over a period of time, and there is

critical shortage of funds (e.g. for fuel and spare parts) the Bank should be prepared to finance a part of the incremental recurrent costs (normally on a declining share basis) over the build-up period. Financial covenants would reflect the great importance the Bank attaches to appropriate increases in Government shares over time.

xxiii. The problems of equipment accounting and charging and of finding regular domestic arrangements for keeping spare parts inventories at more adequate levels need greater emphasis in Bank policy. Autonomous equipment funds fed by hire charges from equipment users already exist in principle in many countries and have substantial potential advantages for improving the efficiency of equipment management and utilization. They can also facilitate the financing of renewals in those quite numerous better-off countries which should be able to finance equipment replacement out of their own resources. Such funds could be strengthened by use of more fully commercial accounting. This would be supported by having equipment portions of Bank highway loans on-lent by Government at harder commercial terms, as now sometimes done with lending destined for credit institutions. Phasing of Bank-financed equipment procurement over periods of years could also facilitate efficient management and eventual renewal. Arrangements for local provision of the small amounts of foreign exchange required to replenish spare parts inventories are critically important. They should be worked out to succeed any lending for initial spare parts inventories and reflected, as necessary, in maintenance financing covenants.

xxiv. Current rates of availability, utilization and productivity of maintenance equipment are very low in many countries and present a significant area for improvement in efficiency and for overall cost reduction. The use of autonomous funds fed by hire charges can help improve the accuracy of detailed recording and reporting systems, which are essential instruments of management in the equipment field. The Bank has begun to work out with some borrowers Action Plans detailing agreed measures to improve the efficiency of maintenance operations over the project period. The targetting and follow-up for such Action Plans are based in large part on the borrower's own internal management information system. Equipment performance is an aspect of maintenance which most needs pursuit in this manner, through Action Plans prepared with experienced mechanical engineering input.

xxv. Another significant way to improve maintenance efficiency and cut costs is by greater recourse to the private sector. Use of contractors can reduce the burden on scarce Government staff, and also bring lower costs as a result of competitive pressures to efficiency which it is hard to duplicate under civil service arrangements. An even flow of relatively small jobs, such as maintenance can provide, is moreover an ideal way of fostering nascent domestic contracting industry. Periodic maintenance is normally contracted out in many of the more advanced developing countries, as are specific jobs such as supply and transport of materials. Ways are now being found to contract out routine maintenance also.

xxvi. Many consultants appear to have placed excessive emphasis on elaborate management information systems, even in countries greatly lacking staff and facilities. Under these conditions the need seems to be more for a simple but highly disciplined inspection/supervision system for field operations, relying for written reporting largely on existing accounting and work-order practices, and

emphasizing regular and unexpected inspection visits by supervisors at each level to units under their charge. The focus would be on developing a shared concept of standards, and a strong sense of responsibility for keeping to those standards whatever the necessary effort. The next step would be creation of a small Organization and Methods section at headquarters, for ad hoc studies. Only at this stage, and provided that the equipment information system is already functioning without problem, should more elaborate field reporting systems be attempted.

xxvii. At later stages in development, and already in many of the Bank's borrowing countries better supplied with educated manpower, there can be more systematic collection of planning data and regular comparison of budget and plan against actual. But these systems should be built gradually and in response to need. For instance, regular traffic counts, using a proper sampling basis and with adequate checks, should be made first for roads with some 100-200 vehicles per day. Focussed on situations and types of data which provide scope for management choice, information systems can help significantly to get a more efficient allocation of resources by identifying problem sections in the network and showing up areas of operational inefficiency.

xxviii. Even then public attitudes and public interest will remain of great importance. They will affect both the resources allocated to maintenance and the standards of performance which the highway authorities will try to attain. They will also impinge on the treatment of roads by the road users themselves, for instance in regard to truck overloading, a problem that cannot usually be solved except by close cooperation between Government and trucker associations. The Bank could usefully help the growth of general road user associations and similar public-interest groups by such means as provision of comparative country statistics and general documentation. Also, the Bank should seek the cooperation and support of other lenders and aid agencies in meeting the maintenance objectives.

xxix. Even though borrowing countries have often fallen short on relevant loan covenants and project objectives, the Bank has played a useful role in the development of maintenance capacity and it has improved the quality of its assistance over time. It should continue and expand the emphasis it has been giving to road maintenance, both in assessment of countries' eligibility for further highway lending and in the composition of new projects. It should push for more specific action plans, training programs, budgeting arrangements and administrative systems. It should agree with Governments achievement targets and control mechanisms to judge and guide progress. The suggestions for strengthening the Bank's action in maintenance which emerge from this review are summarized in the final chapter of the report.

I. Introduction

1.01 Highway maintenance is a worldwide problem, as suggested by the difficulties that some of the states in the United States are having in adequately preserving even some highly trafficked highways. But it is particularly a serious problem in most of the Bank's borrowing countries. The Bank has long been concerned with maintenance of national highway networks, and countries themselves are increasingly coming to the Bank to ask for help and advice to improve their maintenance systems. Greater emphasis on rural development in the 1970s, and much more lending for rural roads construction, further raises maintenance needs. Yet maintenance has been an area of rather limited success in the Bank's earlier highways and roads lending.

1.02 The purpose of this paper is to reexamine the economic priority of highway maintenance, and its importance in development, and to see what solutions seem to work in practice. Use is made of the research on highway design and maintenance standards and strategies that the Bank has done over the last ten years in conjunction with institutions in England, United States, France and, subsequently, Kenya, Brazil and India; this research has produced a fairly comprehensive computer model, which has now been applied in several cases, for analysis of road investment/maintenance decisions. Also, special reviews have been made of past projects financed by the Bank/IDA with maintenance objectives and components, and in particular of certain programs which have worked better than others despite difficult circumstances. These reviews have tended to show that there is still quite a long way to go in maintenance improvement even in these cases.

1.03 In the course of the investigations various questions have arisen about Bank policies and advice with regard to highway maintenance and its financing, and the paper makes some suggestions for strengthening them.

1.04 The basic issues which the paper tries to illuminate therefore cover maintenance as such:

- how can the adequacy of maintenance be measured?
- how does one decide what is an appropriate expenditure on maintenance, and on different components of maintenance programs?
- why do many Governments appear to spend too little?
- what are the key constraints to effective maintenance development, and how can they best be overcome?

and Bank policies with regard to maintenance:

- is maintenance an appropriate object of Bank financing and, if so, what parts of it?
- is there internal contradiction between Bank readiness to finance maintenance operations and the covenants generally included in road construction loans whereby Governments agree to maintain the roads?

- are the high economic rates of return typical on maintenance projects conceptually comparable with the economic rates of return calculated for road construction projects?
- how can maintenance covenants be made more effective?

1.05 The paper proceeds by discussing the evidence on the economic significance of highway maintenance and reviewing the Bank's overall experience with assistance for development of maintenance capacity. It then treats, roughly in the order of their current importance in the developing countries as a whole, each of the five major dimensions of the maintenance problem — Attitudinal, Financial, Staffing, Management and Institutional. A small section follows on the role of consultants. The paper ends with a chapter of conclusions, summarizing principal suggestions.

II. The Significance of Maintenance

2.01 Maintenance of highways has three principal purposes. First, it prolongs their life and postpones the day when renewal will be required. Second, it lowers the cost of operating vehicles on them. Third, especially in the form of emergency operations like landslide removal and washout repair, it helps to keep them open more continuously and to enable greater regularity, punctuality and safety of road transport services. The first purpose mentioned corresponds most directly to the interest of the highway authority, the second to that of vehicle operators, and the third to that of the area's inhabitants more generally.

2.02 Roads deteriorate over time; the rate of deterioration may vary widely depending on the climate, the strength of the pavement, and the traffic volume and weights. The wear and tear of road surfaces by traffic is aggravated by rain water and changes in temperature. Cracking occurs in bituminous pavements, which, together with rain water ingress, causes rapid formation of ruts and pot-holes. The bitumen in the wearing course gradually loses its binding quality, and the pavement becomes brittle. Joints in concrete roads under the effect of traffic and water become subject to "pumping", leading to edge cracking, spalling and slab disfigurement. Heavy rainfalls cause ruts and wash-outs in earth and gravel roads, and excessive water in the upper layers reduces their load bearing capacity, causing deformations. In dry climates evaporation of water reduces the bond in the surface grain structure, which then disintegrates under traffic, so that the fine binder material is lost in dust, and loose gravel left. Rains may cause damage to road shoulders, and unchecked vegetation may overgrow shoulders and road to prevent run-off and evaporation of water. Drains and culverts need clearing and steel bridges painting, and signalization has to be kept in order. Therefore, roads have to be built to standards commensurate with climatic conditions and expected traffic, and then they must be adequately maintained to prevent deterioration.

2.03 Intensive analysis and data collection over the last ten years suggest that the largest benefits of highway maintenance actually accrue not to the highway authority but rather in the form of vehicle operating cost savings, and that these are most often the dominant factor in reaching economically optimal highway maintenance policy choices. For instance, in the case of an old or weakened

pavement, the preservation purpose could be adequately met by recurrent patching and periodic resealing, with substantial benefit in the form of postponing the need for full rehabilitation of the road. But, when all purposes are taken into account and evaluated together, the best solution may often turn out to be an early asphalt overlay, mainly because of the reduction in vehicle operating costs which it will bring.

2.04 Empirical analysis has shown that a paved road surface in reasonably good condition can so save on vehicle and tire wear and maintenance as to cause total vehicle operating costs to be some 15% lower than they would be if the surface was being poorly maintained^{1/}. At modern prices, a 15% saving means about US\$2 per km for cars and US\$10-15 for heavy vehicles (excluding passenger time savings), or an annual total of as much as US\$5,000 per kilometer for roads with 250 vehicles per day and US\$15,000 for roads with 750 vehicles. For gravel roads, the saving per vehicle can be about three times this, but of course the vehicle numbers will normally be much less.

2.05 Highway maintenance is comprised of several different small-scale engineering operations which are repeated at varying intervals, depending on climate, terrain, traffic and design standards of the road. These operations are normally classified according to the frequency with which they are repeated. First, routine or recurrent maintenance consists of operations that normally need to be repeated one or more times every year (e.g. vegetation control, cleaning of ditches and culverts, shoulder repairs, grading of unpaved surfaces, filling of potholes, patching of cracks, and emergency operations). Second, periodic maintenance covers operations which typically need to be repeated only every 5 to 10 years (e.g. regravelling for gravel roads, and bituminous surface dressings or seals for paved roads). A third group of activities, the maintenance of the maintenance equipment and facilities themselves, is an essential support function which is typically incorporated within the highway organization itself.

2.06 For paved and gravel roads in developing countries, the annual costs of desirable routine maintenance (assuming reasonably efficient operations and including equipment charges) will normally range today between about US\$200 and US\$1,000 per km as a network-wide average, while a reasonable indicative average figure for the periodic work (regravelling or reseal) is about US\$8,000/km in the years when it is required. For earth roads, desirable annual expenditures on the same basis can be taken at about US\$100-1,000/km. The ranges are very wide because much depends on how extreme the climate is (especially with regard to rainfall and freezing temperatures), how old the pavements are, and how great the traffic is.

2.07 Combining both maintenance and new construction characteristics is a fourth category of operations, upgrading or betterment (e.g. asphalt overlays, other strengthening and rehabilitation measures, minor drainage and alignment

^{1/} Depending on vehicle fleet composition and age, and the degree of deterioration of the road network, the savings may vary from about 8 or 10% to as much as 40%; the 15% cited is somewhat conservative.

improvements). These measures substitute for, or reduce, routine and periodic maintenance requirements, but they also yield an enhanced value of service and extend the life of the existing asset to such degree as to constitute, in substantial part, capital renewal and improvement. Their cost is obviously highly variable, depending on the extent of work involved, but reasonable indicative figures for the more major operations are US\$40-60,000/km for an overlay and US\$120-160,000/km for full rehabilitation of a two-lane paved road.

2.08 Without allowing for items in the last category, which are generally treated as part of the capital budget, these figures imply that total annual maintenance expenditures (the sum of routine and periodic) need be no more than about 0.5 to 1.0% of replacement (or updated original investment) value for paved roads and 1.0-3.0% for gravel roads. On a network-wide basis they would work out, for example, at about 1.7% of total paved and gravel road capital stock in Bolivia (roughly estimated replacement value: US\$1,200 million) and 1.8% in Chad (approximate replacement value: US\$85 million). The corresponding benefits would normally be from five to ten times as much, with vehicle operating cost savings representing 60-85% of the total and the savings from postponement of the need for renewal the remainder.

2.09 Small though these expenditures are relative to the road capital stock, and relative to the benefits they yield, they do have to be made in a very regular and timely fashion to have their full potential value. This is because of the significance of the vehicle operating cost savings each year and because of the earlier and/or larger additional investments that are necessary if they are not so made. Thus, if the amounts already given for routine and periodic maintenance (making a combined annual average for a network of about US\$1500-2500/km) are spent regularly and effectively, not only will the cited vehicle operating cost savings be realized, but also the need for rehabilitation or overlays can be postponed at least five years^{1/}; moreover, especially with weaker paved roads, the ultimate expenditure on rehabilitation can be considerably less.

2.10 For unpaved roads, the empirical data gathered by the Bank deeply underline the high value of regular routine operations to maintain a reasonable minimum riding surface on roads with even as few as 10 vehicles per day. They also show that, even for much higher traffic volumes, the economic profitability of this work (largely grading) can greatly exceed that of regravelling. At a more detailed operational level, where the same principles of timeliness still apply, grading itself can be several times as effective if done immediately following the rainy season (when there is still moisture in the upper layers), rather than a few weeks later.

2.11 Timeliness is most critical of all in protection of paved roads from water penetration. Pavement structures can be destroyed in a single season when weakened by water penetration, as a result of cracks not being sealed or

^{1/} For a paved road, the savings in capital and interest costs (at 12%) for just 5 years additional life would be about \$50,000/km if asphalt overlays could be used, or more than \$150,000/km if more extensive rehabilitation were required.

ditches and culverts not being regularly maintained to ensure prompt evacuation of rainfall. There is normally a critical phase in the life of a road pavement, which may be just one or two years' duration in a wet climate, when pavement strengthening is essential; delay beyond this period will necessitate far more costly measures. One unfortunate illustration in the Bank's experience is the case of a road which was to be rehabilitated a few years ago in West Africa; deterioration during the one-year delay in award of contracts was sufficient to require eventually full reconstruction, at a cost some US\$6 million, or more than one-third, higher than the rehabilitation would have cost; an additional US\$5-6 million could likely have been saved if, two or three years earlier, a pavement overlay had been applied instead. Thus, contrary to views commonly held outside engineering circles, there are few maintenance tasks -- grass cutting being perhaps the principal one -- which can be reduced or postponed without engendering far larger penalties in terms of future maintenance and reconstruction or vehicle operating costs.

2.12 Maintenance and construction really need to be seen as interacting strategies over time, for the more of one that is done on any given section of roads the less is needed of the other. The evidence indicates that, except where gravelling is unusually expensive (say more than US\$10/m³ laid), it is generally worthwhile to gravel roads initially when they reach traffic volumes of 15-40 vehicles per day. As traffic volumes increase, a point will be reached, normally between 200 and 500 vehicles per day, where paving is warranted. At this point the maintenance costs for the unpaved road may be twice to four times as much as they would be for a paved road with the same traffic volume, and vehicle operating costs will be substantially higher than on a paved road.

2.13 But how heavy should the pavement be? The research to date suggests that the theoretically best approach (minimum present worth of total costs), for a road with growing traffic, is a relatively low-cost pavement initially, followed by rather frequent overlays (the first after only two-three years). However it also shows that this approach, which requires very careful management and timely maintenance interventions, is in the long run only slightly less expensive than a heavier initial investment, to provide a stronger pavement. Without that careful management, it easily turns out far more costly, leading to the need for early rehabilitation or reconstruction. Thus the potentially most economical time-staging strategies, with initial low-cost pavements, appear to be a poor choice unless there is a relatively high probability that maintenance will be performed in a timely manner.

2.14 Tight constraints on overall highway budgets are posing very difficult dilemmas in many countries now and tending to give increasing importance to maintenance and maintenance-related works. In some, past neglect of maintenance means that the most crucial works in the construction category are in fact rehabilitation to restore roads to the state where they can be preserved by regular maintenance. In others, especially those where major additions were made to the paved network in the 1960s and early 1970s, very careful maintenance and timely overlays are of the highest priority now in order to avoid very large requirements for premature rehabilitation in a few years' time. In others, with low traffic volumes over extensive networks, major upgrading cannot yet be economically justified and existing roads must be preserved. All of these factors are causing a very selective attitude to new construction in many countries,

often concentrating mainly on quick-return spot improvements and increases in road capacity over short sections.

2.15 When roads do deteriorate more rapidly than expected, as has happened in Bank-assisted construction programs, it is often hard to tell which of many factors were determinant: excessively conservative traffic forecast, under-design, faulty construction (and inadequate construction supervision), overloading of trucks, or lack of maintenance. Generally some combination of such factors is involved, for timely maintenance interventions could in many cases have largely compensated for small shortfalls on the other dimensions.

2.16 But a particularly serious factor in many cases appears to have been truck overloading. With any given truck axle configuration, weight concentrated on one truck does much greater damage to pavements than the same weight divided over two, and has effects similar to a much greater than proportionate increase of traffic. Thus, a load 50% above design load would be equivalent in its effect on the pavement to 5 trucks of design load, while a load double the design load would be equivalent to 20 such trucks. By the same token, a truck with a single rear axle would cause a serious overload to a pavement if carrying a load equivalent to the design load for a tandem rear axle truck; a similar argument applies to single tires vs. dual tires. Traffic surveys have often revealed overloading to be very extensively practiced, especially on main roads, in developing countries. Reviews of Bank-assisted projects have sometimes suggested that more attention should have been given, at the time of original pavement design, to the possibility of overloading occurring, especially given the great difficulties that have been experienced in actual enforcement of load limits.

2.17 The broader issue of appropriate axle load limits for a country requires very careful economic study, for the particular country, of what road and bridge strengthening and maintenance costs would in fact be required with various broad alternative axle load limit regimes and of what savings in truck operating costs would be gained with the higher limits. The comparisons between costs to the road authorities and savings to the road users also have to take account of the higher cost to the Government of control and enforcement the tighter the limits. Control of production and import of truck types can be as important a means of overcoming the overloading problem as weight control on the roads.

2.18 Some broad indicative ranges were cited earlier for appropriate levels of maintenance expenditure, but the key practical question is how to establish what is an adequate level for a particular country. Programs need to be drawn up taking account of the distribution and growth of traffic as well as the state of the roads and their surfaces, and the contribution each type of maintenance operation can make. One aspect of such program formulation is to minimize the economic costs of each type of operation, for example emphasizing efficiently run labor-intensive techniques where unskilled labor is plentiful. The other aspect is to get the best combination of maintenance operations, in principle carrying each to the point where it yields a marginal return equal to the opportunity cost of capital.

2.19 While the return to efficiently executed basic routine maintenance (such as cleaning culverts, ditches and drains, filling potholes and controlling

vegetation) is not normally in doubt, questions do arise, for unpaved roads, about the appropriate frequency of routine grading and periodic regravelling. Analysis has indicated, for example, that at low grading frequencies (one per 15,000 vehicle passes, i.e. one every 3-4 months for a road with a medium-high gravel-road traffic of 150 vehicles per day), the return to additional gradings is very high, but that as they increase there is a broad range (one per 4,000 to 10,000 vehicle passes) over which the returns to additional gradings are relatively constant at about 10-15%. For a given traffic volume, somewhat higher frequencies are normally economically justified for earth roads.

2.20 The key factors determining the return on regravelling are its costs, the composition and growth of the roads' traffic, vehicle operating costs with and without gravelling, and the social and economic costs of any temporary road closures that may occur in the rainy season without regravelling; the higher the regravelling cost, the higher will be the minimum level of traffic required to warrant regravelling. Maintenance programming for paved roads means preparing a specially designed combination of patching, resealing, overlays and rehabilitation over the years for each section.

2.21 To emphasize the importance of optimizing program composition and of excluding low-priority operations whose low return is hidden within a broader program, there is much to be said for approaching programming with the objective of establishing what amounts of which operations would be sacrificed in the event of, say, a 20% reduction in annual appropriations for maintenance operations, and what would be added with a 20% increase, and what are the returns to these decremental and incremental expenditures.

2.22 An inherent difficulty of maintenance planning -- and an additional obstacle to convincing presentation of the case for Finance Ministry appropriations for maintenance -- is practical measurement of the parameters involved. The economic importance of maintenance depends essentially on interrelated small differences in the state of the roads and the costs of operating vehicles on them. The research undertaken by the Bank is based largely on extensive surveys of road roughness^{1/}, the difference that changes in this make to vehicle operating costs, and the costs of maintenance operations restoring road roughness to a lower level or keeping it there. A few developing countries (e.g. Bolivia, Brazil, India, Kenya and Tunisia) have now obtained road roughness measuring instruments. But this science is still at quite an early stage of development and not universally known. Many developing countries are undertaking deflection surveys^{2/} for paved roads, but not yet on the regular annual basis that may be necessary to show rates of deterioration and hence establish more precisely when and how thorough a strengthening is required. Moreover these measuring devices deal with only part of what is involved in maintenance.

^{1/} Road roughness, as indicated by the cumulative recording of road distortions over a certain road length (e.g. in mm/km) gives a measure of the road surface quality. While a certain amount of roughness is built in at construction, it generally increases with the pounding of traffic and through climatic effects.

^{2/} Pavement deflection, as measured under a specified loading, indicates the structural strength of the pavement layer system. As the pavement is weakened through the traffic action, ingress of water, etc., the deflection increases.

2.23 Thus a good deal of experienced judgment is inevitably required for establishing the values of the parameters which enter into preparation and assessment of maintenance programs. Progress in the cases where more scientific methods are applied helps to generate benchmarks and relationships for improving the application of judgment in other similar cases. Visual impression and roughness "feel" will nonetheless remain very important primary indicators of the state of roads and of what different maintenance operations can do about it, in many developing countries as in most industrialized countries. These assessments are then quantified, in terms of the various costs of the maintenance operations and the benefits that they should bring in the form of reduced operating costs for rising traffic, substitution or postponement of heavier rehabilitation and reconstruction work, and preservation of year-round accessibility. The difference between cost and benefit streams can be expressed as a rate of return to the initial investment in maintenance equipment, workshops, technical assistance, etc.

2.24 The resultant rates of return have tended typically to turn out very high for maintenance projects considered for financing by the Bank in recent years, and this does seem to be a further indication that in many countries marginal shift of additional resources into maintenance from new construction or from other sectors could indeed be advisable. Of the 21 highway loans and credits totalling just over US\$650 million which the Bank approved in the fiscal year ending June 30, 1978, 13 included substantial maintenance components. An economic rate of return was calculated for 12 of the maintenance components and all of the new construction components. The rate of return for the maintenance components was over 100% in four cases and averaged over 40% for the other cases, while the rate of return for new construction averaged 24%, with a range from 11 to 56%. The flow of benefits from the physical investment in maintenance is of course much shorter than from new construction, generally about 6-8 years corresponding to the estimated average life of the equipment involved, compared to 20 years for most new construction. But there is no reason to suppose benefits cannot be reinvested over time at equally high returns in the maintenance field.

2.25 For the reasons discussed in paragraph 2.22, of dependence on judgments about small differences in various large quantities, estimates of maintenance program rates of return may be considered subject to more variance than those for construction programs. However the difference in the expected values cited is very substantial. Most of the Bank-assisted maintenance projects which have already been completed, despite substantial shortfalls in physical achievement referred to in the next chapter, have nonetheless been judged to show estimated actual rates of return far above the opportunity cost of capital. This fact tends further to confirm the very high potential return to efficient maintenance operations.

III. The Bank's Experience

3.01 The Bank has been concerned with the development of maintenance capabilities from the start of its lending for highways in developing countries in 1949. Many of the earliest loans for the highway sector were for the purchase of maintenance equipment, identified by the borrowing countries as their most pressing need. It was early made standard practice to attach to road construction

loan agreements general covenants requiring that the roads to be built, or the highway network as a whole, be 'adequately maintained in accordance with appropriate engineering and economic standards'. Requiring for its effective accomplishment a complex and widely spread organizational infrastructure, properly motivated and financed, this covenant often proved much more difficult to fulfil than efficient construction of the particular roads financed. Experience persuaded the Bank that more active assistance was necessary to help borrowers develop adequate systems of maintenance.

3.02 Over time the Bank's involvement in maintenance has therefore steadily deepened and broadened. It has deepened in response to evidence that earlier solutions had proved only partially effective or that there was still much more to accomplish; no maintenance development effort was foreseen as being more than ten years at most in duration, but none has turned out in reality to be that short. The Bank's involvement has broadened as the combined result of the continuing need of most old borrowers and the widening range of highway borrowers. Even within the last two or three years Bank/IDA highway lending has begun for the first time -- or recommenced after a gap of 15 years or more - to Bolivia, Dominican Republic, Oman, Panama and Portugal -- in each case, with a project heavily oriented toward maintenance. Further new borrowers are expected.

3.03 In support for maintenance the objective has been constant -- to help countries develop efficient systems for carrying out, on a continuing basis, economically and technically appropriate operations. But the scope of this has increasingly widened, especially in the 1970s, to include rural roads in addition to national networks. The objective itself has been attributed increasing relative importance. There have also been numerous significant changes in the Bank's techniques of support. In the earliest years assistance was largely confined to finance for equipment purchases and, occasionally, workshop construction. Later the Bank helped to bring in general highway department consultants. But in neither case did the Bank itself go deeply into specific objectives or targets of operational performance. The next approach was to focus more specifically on pilot districts for improved maintenance. Long-term results of these various efforts were generally limited.

3.04 By about 1968 the Bank was beginning a first major round of effort on maintenance with many African or Asian countries which had not been large Bank/IDA borrowers for highways before, and a second (or, in some cases, third) round with many Latin American countries. A more comprehensive approach was applied, of which the main elements were typically:

- As a basis for support, a consultant-formulated four-year program, setting target kilometers on which periodic and routine maintenance was to be carried out;
- Reform of organizational structure, generally stressing separate units with specific responsibility for national network maintenance and for maintenance equipment, and some rationalization of regional structures; and emphasis on modern management information and costing systems for efficient control of maintenance works;
- Inclusion of more intensive specialized technical assistance or consultant services, with a general brief for training as well as responsibility (executive or advisory, depending on the case) for the operation of the overall maintenance program;

- Agreement with borrowers on the specific amounts that would need to be provided out of recurrent Government budgets for maintenance over the program's years of operation, and sometimes on mechanisms for channelling appropriate resources into maintenance (e.g. Road Funds);
- Enforcement of vehicle weight limits, selected on the basis of economic analysis for the country in question, plus stress on the formulation of appropriate laws, establishment of weighing stations, and clarification of enforcement responsibilities.

The Bank's financial support for these programs typically covered the foreign exchange costs of the traditional items -- workshops, new equipment (with initial spare parts inventory), spares to rehabilitate existing equipment and technical assistance. However it also now began to include more readily the foreign costs of periodic maintenance operations, whether by contract or by force account, and occasionally, in the poorest countries, small contributions to local currency expenditures.

3.05 Many operations of this type were financed between 1968 and 1972, and results are extensively covered in already completed PPAs/PCRs, twelve of which deal with projects approved in this era that were devoted almost exclusively to maintenance. The general pattern of results is disappointing; broadly consistent with the wider pattern, the twelve specific maintenance projects show two to have been moderately successful, four to have largely failed, and the remainder in between with about 50-70% achievement of physical targets (within a project period typically extended 1-3 years). The projects were overambitious, not in the sense that they were not needed -- even in the 'failures' the Bank-assisted facilities generally accounted for most of what maintenance was actually done -- but in the sense that hindsight suggests the various available resources were not put together in the way to come closest to the objectives. While the new organizational structures were largely created, equipment was procured normally in the quantity planned, and new data and accounting systems were designed, effective operation of these various components has been much more difficult. Even so, the overall economic returns estimated to have been realized from these projects have generally been high.

3.06 The main problems have been shortage of qualified and motivated personnel and of operating funds. Training programs were too small, too partial or too discontinuous. In some cases, organizational structures and operating systems created were too elaborate for the very great scarcity of trainable personnel. Loss of qualified staff or potential recruits to a higher-paying private sector has been an important additional constraint. While agreement on annual targets for maintenance allocations does seem to have helped, nonetheless budgetary appropriations have often proven inadequate, either because inflation has rendered the agreed targets too low or because budgetary stringency prevented their being met, despite in some cases very serious efforts. Actual maintenance operations have suffered additionally from the rising share of appropriated funds which had to be devoted to wages, pressing requests on the maintenance organization to undertake other work, and particular difficulties in procuring foreign-exchange items such as spares and fuel.

3.07 Another important problem has been start-up delay, characteristic of almost all the projects; to illustrate, out of the twelve projects specifically devoted to maintenance, in only one case (Benin) did the first main equipment

delivery take place within about a year of credit signature, while in all other cases it took at least one-and-a-half years, and in four more than three years. Weight control, other than that imposed by road conditions and gradients, has seldom been effective, due to trucker opposition and shortage of appropriate enforcement staff.

3.08 In response to this experience, the Bank and its borrowers have further developed their approach to maintenance, and recent projects show an important evolution from earlier efforts. Some of the main characteristics are:

- Increased emphasis on staff training, with initial comprehensive staff inventory and program formulation by the consultants hired for training, inclusion of training expertise in their team, and establishment of training as a permanent function in the borrower's organization, with its own physical facilities and established posts, and a formal policy statement;
- Further precision in budget requirement forecasts, with breakdown between major expenditure categories, establishment of special mechanisms for problem areas such as spare parts procurement and equipment renewal, and provision for annual reviews; the Bank has shown a wider readiness to finance periodic maintenance more fully and spare parts inventory restoration, but has only very rarely financed any part of recurrent maintenance operating costs;
- Agreement on specific annual operational targets, particularly with regard to equipment availability, utilization and scrapping, and on programs of action to attain these targets; and more critical analysis of equipment requirements, in light of the high costs implied by past low availabilities, with a view to using more labor-intensive techniques, where appropriate, or more private contractors;
- More professional preparation of the mechanical engineering parts of the project, carefully integrating phased programs of spare parts procurement for overhaul (corrective maintenance) of existing units and future preventive maintenance, fleet replacement, workshop development and related training and technical assistance;
- More in-depth economic analysis by the Bank in conjunction with borrowers, to try to optimize levels and patterns of maintenance expenditure more precisely and more convincingly;
- Introduction of automatic weighing scales, to reduce the human frictions involved in vehicle weight control, and consideration of this issue in the wider framework of trucking industry regulation.

The principal financial contribution of the Bank continues to be for purchase of equipment (including workshops and weigh-stations) -- an annual average of some US\$60 million in 1975/77 lending commitments, compared with about half that amount in 1969/71.

3.09 Very promising initiatives have been taken by several borrowers along these lines, with maintenance projects that were, by the stage of their approval by the Bank, far better prepared than any earlier such projects. At the same time the Bank itself has been increasing the stress that it puts on the adequacy of borrowers' maintenance efforts as one criterion of eligibility for further highway loans; approval of several new loans was delayed in the last year or two until appropriate steps were taken. The impact of such stands has been unfortunately reduced in some cases in the past by the readiness of other institutions and bilateral export credit agencies to proceed with new lending. But the evidence is clear that borrowers have often attached high value to firm actions by the Bank on matters of principle that are as important as the integrity of maintenance organization and maintenance funding.

IV. The Attitudinal Dimension

4.01 Most people, like most organizations, readily perceive the importance, in principle, of properly maintaining the assets for which they are responsible. The difficulty comes in steadily sustaining that conviction over time, particularly when practical pressures arise. Not very different from the householder pressed by his family to postpone a roof-repair so as to take advantage of a furniture bargain, the highway department official often faces the strongest pressure to skimp a bit on maintenance so as to meet the needs of at least a few of the groups constantly at his door for access improvements. He has against him common popular assumptions, such as that roads once paved take care of themselves or that the effects of maintenance are anyway washed away by the next rains. Maintenance is unglamorous, never-ending, and noticed only after it has been absent a while. It lacks the professional and political prestige of new works.

4.02 Creating and sustaining a compensating positive attitude toward maintenance, both in the public at large and among Highway Department employees, is fundamental -- and often a more critical need than provision of additional budget funds. But it can also help solve the funding problem, in two ways: greater public understanding will make it easier for Governments to increase allocations, and a serious attitude in the Highway Department will provide more assurance the funds will be soundly spent.

4.03 Within the Highway Department, the attitude of the top officials is crucial, in establishing the real importance attached to maintenance, generating esprit de corps and sense of responsibility, inculcating a disciplined approach to preventive servicing and maintenance, and setting high performance standards. The degree of dedication and leadership shown by a few key executives has been a critical factor in the relative success or failure of Bank-supported maintenance projects. Seemingly simple aspects like whether the Minister and other senior officials show interest in maintenance in their visits to the regions, whether they take time there to inspect the facilities they pass and to commend or criticize those responsible, and how much of their best staff they put to maintenance are vital factors. They appear much more important than gimmicks like performance competitions between maintenance districts, although these too can sometimes be useful. In some countries, broader national indoctrination movements stressing discipline and responsibility, such as Saemaeul Undong in Korea, have also helped considerably.

4.04 For the broader public, special publicity campaigns are often needed, to generate understanding and cooperation. For instance, again in Korea, a nearly 100% increase in the maintenance budget has finally been won for 1979, following an intensive public relations campaign by the Government highway department to explain the importance of highway maintenance through the press, radio and television and by letter to other ministries and to provincial governments. Equally, most of the few successful efforts to control vehicle overloading have depended critically on intensive public education and advertising campaigns, such as the one undertaken in Honduras, prior to the introduction of clearer regulations early in 1977. Automobile clubs, road transport associations, transport user groups and broader public-interest groupings, like Chambers of Commerce, can often play a vital intermediary role in disseminating information, generating support and representing public demands.

4.05 The Bank's emphasis on good highway maintenance has been of recognized value to many Ministers of Public Works in discussions within their own Governments and in strengthening their own organization. But the Bank might help more broadly, possibly in association with groups like the International Road Federation or the international highway safety bodies, to build up the infrastructure of public-interest institutions which will sustain maintenance and make it easier for Governments to provide the necessary support. The Bank could, for instance, encourage more the formation of road user associations and assist public education campaigns with material illustrating in a straightforward way the importance of maintenance and how countries compare with one another in effort and results. The Bank should also actively seek to impress on other lenders and aid donors the importance of maintenance, and the need for a unified approach.

V. The Financial Dimension

5.01 A perennial problem in highway maintenance is to ensure that sufficient funds actually get steadily and effectively spent on the highways. Experience shows that there are bottlenecks and obstacles at every level: for example, political concern that public opinion will be more impressed with new works; planners' reluctance to cut capital development budgets and preference for schemes with sharp development impact; foreign assistance representatives' anxiety to assure their principals of a durable contribution to development, preferably with a local financial participation too; overbudgeting and unexpected revenue shortfalls so that the Treasury can only release a part of funds authorized; difficulties of stopping or slowing new construction contracts, once started, and failures to budget adequately for debts due local suppliers. Detailed country assessments that have been carried out in the last few years generally recommend increases of anywhere from 25 to 200% in maintenance spending, depending on the case.

5.02 There is hardly a country where overall revenues from road users -- in the form of gasoline/diesel tax receipts, license and registration fees, import and excise taxes on vehicles and components, tolls and fines -- are not a multiple of existing maintenance budgets and fully adequate to cover all desirable expenditure on routine and periodic maintenance, at least for the main national network. In many cases they are even more in total than the sum of all public highway expenditures, construction included. But being so important, they are also a

critical part of general Government revenue, for use in all fields. Sometimes the Bank has acted quite effectively to encourage countries to make appropriate increases of fuel taxes, but nonetheless this did not resolve the maintenance funding problem. Thus the difficulty is more on the expenditure side of the national budget.

5.03 Some countries have sought to simplify the matter by specifically earmarking certain taxes for use on the highways, and the Bank has on several occasions strongly supported the creation or recreation of such Road Funds in the expectation they would fully cover the costs of routine and periodic maintenance and equipment maintenance and renewal. But almost no earmarking solutions appear to have fully produced these results, and several countries have moved away from the system. There have been many problems: in some cases, Government decisions, under severe budgetary pressures, not to pay in all the taxes their laws would imply; where the Funds were for both maintenance and construction, moneys were often inevitably preempted by ongoing construction contracts; the earmarked taxes being at fixed rates (e.g. so many cents per liter), revenues soon became insufficient with inflation; in some cases fuel consumption fell with the difficulties of recent years, and revenues with them; and maintenance department operations financed by the Funds have sometimes been diverted to other purposes than highway maintenance.

5.04 One country in which the system of earmarked taxes does appear to be working relatively effectively at present is Paraguay, where maintenance is now largely financed by 10% of the fuel tax plus a special surcharge on imports, with the revenues from these taxes being paid over in equal monthly installments, and usable up until the end of the fiscal year. To improve the earmarking system, the Bank has recently helped several African countries set up separate accounts outside the national Treasury, specifically to receive all or part of fuel tax revenues, and usable only by the Public Works Department and only for maintenance operations.

5.05 Establishment of such accounts may be a step towards the creation of an independent highway authority -- indeed, in one country, a legal precondition was that the maintenance department be declared a Road Maintenance Authority. Although imaginatively put forward by some transport economists as an appropriate way of managing the highway network generally, the concept of a financially self-sufficient semi-public national highway authority has not yet been applied anywhere. But approximations to it, on a limited scale, are toll-road authorities such as exist in several countries. One of these which is highly successful is the Korea Highways Corporation, responsible for some 1,200 km of expressways and main highways and run along commercial lines, with much higher salaries than the national roads organization and strong incentive systems. It sustains a very adequate level of maintenance, fully financed at an annual average of some US\$12,000 equivalent per km out of toll revenues.

5.06 Even without the constitution of an independent authority, the commercial notion of a country's highways as fixed assets, for the maintenance of which it is reasonable to pay, say, 2% of replacement value annually, is helpful in promoting the cause of maintenance. Preservation of the national patrimony, spreading to all the benefits of works contributed by outsiders, national pride in having better roads than other countries, and recognition of the supreme

importance of transport for a land-locked country, have all been significant ideas in the debates in Niger which have led to that country making such a strong effort in highway maintenance. One of the largest and poorest land-locked countries in Africa, severely affected by the Sahelian drought of 1972-74, it nevertheless succeeded in raising maintenance allocations from some 4.5% of total Central Government revenues in 1965 to a sustained 7% throughout the first half of the 1970s -- compared with a normal existing range of about 1.5-3.5% in most other African countries. General Government conviction was far more important than any automatic mechanism in bringing this about; indeed the Road Fund was abolished there as a separate account in 1970.

5.07 Yet the case of Niger is also instructive from the point of view of illustrating the difficulties of developing countries in sustaining an adequate level of maintenance funding. In 1970-72 an IDA credit was financing half the costs of periodic maintenance, all contracted, and the routine maintenance service had new equipment fully paid from the credit. The IDA project had largely ended before the economically most difficult years 1973-75. In 1970-72 some 8.5% of the national budget would have been required for maintenance of the main national network alone if IDA assistance had not been available, and in 1973-75 about 10% would have been necessary to meet the original IDA objectives of Niger sustaining, on its own, routine maintenance, periodic maintenance, equipment repair and equipment renewal, all at adequate levels for the main national network.^{1/}

5.08 The Government economized principally by cutting periodic maintenance (only about 100 km a year were regravelled, compared with the 250-350 km which would probably have been worthwhile) and by omitting build-up of reserves for replacement of equipment, strictly limiting new equipment purchases and running down spares inventories below the most efficient levels. Routine maintenance of the main national network was kept at fairly adequate constant levels. This was probably the best course under the circumstances. But the postponement of periodic maintenance means that some roads have deteriorated, to require a more extensive deferred periodic maintenance now. Also there are indications that the cumulative financial restrictions on the Equipment Division, together with virtual cessation of training on the departure of the IDA project consultants in 1973/74 and subsequent further sharp reduction in foreign technical assistance, may have affected the adequacy of routine maintenance more recently -- due to low equipment availability. In 1979, with the revenue increases of the last years from uranium exploitation, Niger is beginning substantial equipment replacement out of its own funds, and a larger periodic maintenance program is starting with new IDA-financed equipment and technical assistance.

5.09 While Niger is somewhat exceptional in the magnitude of its maintenance requirements, and in the intensity of its effort to meet them, it is quite clear that highway maintenance is, generally, a much more serious burden in Africa south of the Sahara than in most other parts of the world. Rough calculations for a broad range of developing countries, half of them in that region and the others distributed over all continents, show that minimally adequate maintenance

^{1/} A rough assessment, on the basis of standard costs for different types of road, suggests a figure of about 15% in this period for adequate maintenance of the country's total network.

of their road networks would require more than twice as high a proportion of Government revenues in the African countries as elsewhere: a median of some 3.3% (range: 2.5-9.5%), compared with 1.6% (range: 0.5-3.0%) in the non-subSaharan African countries. If the burden is measured as a proportion of GDP, the difference is even greater: a median of 0.7% (range: 0.3-1.4%) for the African countries, compared with only 0.22% (range: 0.1-0.5%) for the others.

5.10 Analysis of current actual expenditures for the same sample of countries shows that while funds equivalent to twice as high a proportion of GDP in the African countries as in the others are already being devoted to maintenance, the shortfalls from the bare minimum desirable levels used in the above calculations are generally between 20 and 70% in the African countries, but small or non-existent in the others. Comparisons within Africa, and with poorer developing nations elsewhere, suggest that the explanation of these large differences in the share of GDP which needs to be devoted to maintenance is less the poverty of the African countries than their extensive geography and sparse population.

5.11 The fact that most of the African economies are so heavily dependent on foreign financial assistance, however, has presented an additional problem for them. Foreign assistance agencies have typically been prepared to finance, in Africa, as much as 70-90%, or even more, of construction contracts, but only the purchase of new equipment for maintenance, representing about a quarter to a third of the total cost of the latter; they have been particularly reluctant to finance spare parts for existing equipment. Maintenance seldom accounts for more than a third of total public expenditures on highways in developing countries, and sometimes much less, but the amounts of local funds devoted to it are often nearly as much as those devoted to highway construction in the poorer countries and, in the poorest countries, sometimes considerably more.

5.12 In these circumstances the possibility of generating three times as much foreign aid inflows for any given volume of incremental local budgetary expenditure in the highways field must weigh in the mind of Finance Ministry executives. There is no doubt that in many African countries this has given rise to a bias in favor of new construction projects rather than maintenance, especially since neglect of a road's maintenance eventually means that rehabilitation is required, a capital investment that again normally qualifies for a high proportion of foreign financing.

5.13 The Bank itself has had two policies affecting its own participation in maintenance and the objectives it sought to agree with countries. The basic aim is well stated in the Bank's normal maintenance covenant, requiring a country to adequately maintain its roads -- with the emphasis clearly on the need to develop maintenance capacity and channel sufficient effort into this function, whatever financing sources might be tapped. The second very relevant policy is that the Bank normally limits its financing to capital expenditure. The application of this policy to highway maintenance and similar operations has implied that the Bank would lend only in exceptional circumstances for purchases of goods and services that promise to yield benefits over less than, say, a five-year period. A link between the two policies is that one dimension of the capacity-building aim is the development of local financing mechanisms to provide a sufficiently regular and assured flow of funds into maintenance, especially for expenditures yielding only short-run benefits but eventually for those with longer economic life too.

5.14 Difficulties arise in cases where the first, essentially institution-building, aim conflicts with the second, financial principle. This is further complicated by the fact that failure on the first with regard to routine maintenance can mean that the financial burden imposed on future generations (or on donors in the event of grant aid) by eventual borrowing for expensive rehabilitation is actually greater than what it would have been had funds been borrowed to help finance regular routine maintenance. The latter costs less in terms of discounted present worth and, in addition, the financial gap preventing its execution is often only that part of its total cost corresponding to fuel, spare parts and imported materials.

5.15 In many countries the highest-priority need from the institution-building point of view is indeed to develop a smooth-running system of routine maintenance. Yet the Bank's reluctance to finance recurrent expenditures largely limits its financial contribution to payment for the equipment and initial spares inventories, plus any related technical assistance. Often this should present no insuperable problem, and many countries have in fact succeeded in very sharply increasing their own budgetary contributions to maintenance; for example, contributions have been sustained at a level 100% or more higher than before in Chad, Indonesia, Liberia, Nepal, Philippines and Tanzania within the last few years. But in some cases even these increases are not sufficient, while in others such rapid increases are not feasible. Foreign exchange can be a particular problem; although initial spare parts inventories, and their replenishment in a few instances out of savings on other components in Bank-assisted projects, have helped, expensive equipment has sometimes been left idle for long periods for lack of funds for fuel, spare parts and materials.

5.16 Where these problems do not reflect merely lack of fiscal and administrative effort but real lack of room for maneuver -- as can happen principally in the African countries with their comparatively very high maintenance burdens -- it would seem appropriate for the Bank to take a more liberal attitude than in the past toward the financing of recurrent costs. A considerable Government participation would still be necessary in the form of labor wages, payment of which has seldom presented a major problem in routine maintenance operations, while the Bank would cover part of the costs of purchased current inputs, particularly foreign exchange items such as fuel, spares and bitumen. Bank participation, on a declining basis, in the incremental recurrent costs of routine maintenance could help concentrate Bank and borrower effort on the top-priority need and assist a country over a transition period to a higher regular level of recurrent maintenance performance. Justification for such financing would thus be based on a combination of institution-building and budgetary considerations, which would be explicitly stated, along with a plan for developing local financial mechanisms and increasing local participation in maintenance financing more generally, as discussed below (paras. 5.23-25).

5.17 Equipment presents in some respects an opposite case, where Bank financing is readily available but special provisions may be required to ensure that it is fully supportive of the institution-building objectives. Equipment clearly qualifies as capital expenditure because its useable life extends over a period of years. Borrowing for purchase of equipment can be eminently desirable in terms of overall country borrowing policy. But the efficiency with which equipment fleets are presently run often leaves much to be desired. Availability, utilization and productivity rates are extremely low. Provision of new equipment has therefore often to be accompanied by major efforts to improve performance in

these respects, in order to keep the numbers of units required to a reasonable minimum, to get the best results from the investment made, and to increase a country's self-sufficiency over time.

5.18 Recognizing the difficulties of running equipment fleets efficiently within normal Government administrative systems, many countries have tried to establish autonomous budgets or revolving funds for maintenance equipment, fed by hire charges from equipment users. Bank appraisal reports have often supported this objective. Such funds have a multiple potential purpose: first, to make operations more flexible, for instance in facilitating expeditious purchase of spare parts, and removing cumbersome pre-audit requirements of regular Government procedures; second, to discourage diversion of equipment to non-road uses, a major problem in some countries; third, to enable trends in the efficiency of equipment maintenance and operation to be assessed and monitored, so that management can act expeditiously to bring down costs; fourth, to promote awareness within the highway department of the high cost of equipment (most simply by an hourly use charge) and thereby encourage economic utilization; fifth, to offset any possible distortionary effects on decision-making -- e.g. against labor-intensive operations or against contracting work out to the private sector -- that might result from lending on Bank/IDA terms to the public sector for equipment procurement; and sixth, for those quite numerous countries which should reach the stage of being able to finance equipment replacement out of their own resources, to facilitate such purchases and encourage decreasing reliance on foreign borrowing.

5.19 However, effective operation of such hire-funding schemes has also faced difficulties in many countries and seems to need more serious attention from the Bank. They require a special initial effort to develop the necessary accounting and management skills -- principally a few key staff -- and also supporting technical programs for improving equipment availability and maintenance, so as to reduce costs. The Divisions responsible for road works have to be sufficiently funded, and in a regular manner, to pay the hire-charge rates. A major problem in many cases has been that the rates have been set too low in the past, essentially because large initial injections of equipment financed out of Bank/IDA assistance have postponed the need for regular renewals, and build-up of reserves for later replacement purchases has been difficult for financially constrained Public Works Ministries to undertake when they knew that equipment replacement could always be covered by further foreign borrowing.

5.20 The way to help strengthen the financial framework may be to put the accounting operations on a more clearly commercial basis, including interest on capital as well as depreciation in the hire charges, and onlending equipment portions of Bank/IDA financing to such revolving funds on the shorter, harder terms (with transfer of exchange risk) now sometimes used with lending destined for credit institutions. In this way the real costs of equipment operation would become clear to all concerned. Also, setting up equipment procurement plans, as in the recent Highway Maintenance Project in Oman, and even equipment procurement contracts, in such a way that deliveries take place over a series of years, would help. Such a system would avoid the absorption problems connected with very large one-time injections of new equipment -- sudden needs for greatly increased numbers of operators and mechanics that some countries have been unable to meet properly. It would ensure a smoother pattern of equipment aging over time,

thus helping to achieve more constant equipment availability and more even need for mechanics. And it would lead to an eventual pattern of renewal needs that could more easily be met by those countries which should be moving to finance renewals themselves. The same principle of phased procurement applied to spare parts, with only annual review of the price structure for approved dealerships and contractors, would help ensure a smoother flow of spares and reduce the burden of procurement work.

5.21 Even while encouraging adoption of a more fully commercial accounting framework -- because of the contribution it can make to solving the equipment management problem -- the Bank/IDA should also be clear from the start that in the poorer countries it would normally be prepared to lend for equipment replacement. Greater clarity there could enable the Bank to be more precise and insistent about countries providing out of their own foreign exchange resources (where necessary, with transitional assistance from loans) regular funding to maintain spares inventories at the 15% of aggregate value of equipment which is generally essential for efficient equipment maintenance in countries far from main supply routes. A few years ago Honduras set up a small but useful emergency revolving fund, under the control of the maintenance department, to facilitate expeditious import of spare parts. There may be possibilities of developing advance operating funds provided under some recent IDA credits to African countries into more permanent funds of this nature.

5.22 Financing of periodic maintenance, with an expected life to the benefits of the work of at least five years, is an area where the Bank has already typically shown greater flexibility than other lenders in recent years. In some instances, where local funding could be sufficient to cover materials and equipment operating costs, the Bank has simply lent for equipment purchase. But in others, where adequate funding could not be provided from domestic sources, the Bank has financed a share -- normally foreign exchange costs, but sometimes more -- of total costs, as for any capital project. The institution-building emphasis, in the case of periodic maintenance, would guard against a problem that has sometimes arisen -- of expanding force account operations to a level that the borrowing country cannot sustain over the medium term -- and encourage systematic consideration of the private contractor alternative, which can also help significantly to build up the local contracting industry.

5.23 The long-run institution-building aim that all maintenance expenditures, for periodic works and equipment renewal as well as for routine operations, be recognized as the borrower's responsibility, to be financed internally or on commercial terms, probably needs clearer emphasis in Bank policy. The importance which the Bank attaches to increasing financial self-reliance should be expressed by closely analyzing the longer-term trends -- before, during and after a particular proposed project -- in the proportion of total maintenance expenditure covered by local budget funds. Clearly, account should be taken of the size and growth of the maintenance burden relative to the country's economy, extensions of maintenance coverage, exogenous shocks to the Government's financial performance such as decline in the market price of a major export commodity or natural disasters, and the weight of economically justified new building requirements in the highways sector.

5.24 Treatment of all road maintenance obligations together would clarify the real burden the country faces and avoid the definitional difficulties that sometimes arise in precisely distinguishing recurrent and periodic expenditures.

Among countries currently receiving the greatest external assistance for maintenance, these country internal-financing shares of total maintenance costs now appear to stand at about 50% for the poorest, and 80% among the richer ones; with development, they should clearly rise, to reach 100% in the most advanced countries borrowing from the Bank at any particular moment. Direct linkage of Bank assistance to a rising local financial effort may sometimes be a useful short-run technique for assisting this trend.

5.25 The specific agreements on domestic appropriations to maintenance in each of the coming four or five years that have been sought in connection with loans and credits in recent years, while they have not always been fulfilled, have nonetheless been undoubtedly useful in assisting Government planning, reducing misunderstanding between Governments and the Bank, and helping Ministries of Public Works to get adequate attention from Planning and Finance Ministries. Sometimes they may need to be yet more specific -- more clearly covering routine, periodic and equipment maintenance, and identifying separately foreign-exchange operating funds required and total non-labor expenditures -- and to include simple index formulae (e.g. local prices of fuel, labor and spares, appropriately weighted) for updating the estimates. Proper planning and project sizing would also be helped by including in such agreements some indication of the expected magnitude of the maintenance burden after the project, and a rough projection of how its financial requirements might be covered.

5.26 In practical Bank policy, giving greater emphasis to the institution-building objective defined in the loan agreement maintenance covenants means that Bank-assisted maintenance programs should turn out better balanced than occurs in actual practice now. Also, more attention would go to developing local financing mechanisms according to the order of their institutional priority, with arrangements for spare parts -- whether for routine or periodic operations, or indeed road betterment -- being the first essential. Equipment funds, with their multiple advantages for operational efficiency, would have a better chance of success. Finally, cumulative foreign lending required could in some cases eventually be less, both because institution-building should be a bit more rapid and because roads should be less often allowed to deteriorate into major rehabilitation cases.

VI. The Staffing Dimension

6.01 In many regions, especially in Africa, the most serious constraint on highway maintenance is the lack of adequately trained or experienced staff. In other parts of the world, more amply supplied in general with skilled manpower, severe shortages still often characterize the maintenance field, specially the relevant Government Department, due to low interest of maintenance and poor salaries. Apart from some countries where the matter was neglected until quite recently, the Bank has given more attention than many other foreign assistance agencies to maintenance training, supporting it with financing for the foreign exchange costs of construction of physical facilities, purchase of training equipment, technical assistance and overseas fellowships. But the results have so far been generally rather disappointing and, as Chapter III showed, this area has been getting somewhat deeper attention in more recent projects whose results cannot yet be known.

6.02 Some past maintenance training programs have suffered from the fact that the Governments or their consultants were overoptimistic as regards the numbers of people that could be made available for training, or regarding the educational basis that such trainees or counterparts would have. But the more worrying problem is that it often seems in retrospect as though more could have been accomplished within the program period, even given the scarcity of human resources that prevailed. For instance, programs have sometimes been envisaged only for mechanics and operators, although field supervisors and inspectors were equally in need of training and would have been available. In other cases training has been oriented too exclusively to the particular needs of two or three new mechanized units, to the neglect of the consequences for the remainder of the maintenance operation from skimming off the best existing personnel for such units. And frequent problems have been internal imbalance between the various complementary elements -- equipment arriving late in the stay of the technical assistance team, delays in workshops and classrooms, etc. -- and unfortunate discontinuity in training due to failure to sustain programs once started.

6.03 A serious training program for a maintenance organization needs to be based on a careful, forward-looking analysis of the prospective balance between changing skill requirements, at different levels and in different specialties, and prospective availabilities from existing sources. Proper allowance needs to be made for considerations such as the capacity of existing staff to absorb new learning, their releasability for training, the need to replace expatriate employees, and the losses of staff that result from Government agencies being in most countries, and particularly in developing countries, training grounds for the private sector. The program needs to be comprehensive, in terms of coverage, from senior engineers and managers to patrolmen and drivers (of the highway department and any other entities responsible for maintenance, such as local councils), and in terms of training modes considered -- overseas schools and visits, counterpart arrangements, equipment supplier courses, classroom and on-the-job, etc. Such planning can seldom be done in sufficient detail without periodic thorough inventories of staff and their educational attainments.

6.04 But thorough program preparation and planning are only half the story, for experience shows that adequate foresight of the need for trained staff and the availability of trainable people, in all the relevant dimensions of specialty and capacity, is hard if not impossible to reach. Thus continuity in the training effort, and flexibility in adjusting it to changing needs, are essential. Too many programs have ceased with the departure of consultants after four or five years, and then taken another three years to reinstall.

6.05 One exception to this pattern is Rwanda where a continuous, and in fact growing, effort in highway maintenance training has been sustained since 1972. In 1970 consultants had been instructed to prepare a rather unusually long 8-10 year maintenance program. Perhaps partly because of this long perspective from the outset, considerable effort was made to ensure continuation of the technical assistance services: the principal group, financed for the first four years by UNDP, was extended for 18 months under a supplementary IDA credit mainly to cover a construction cost overrun, and then financed a further four years under a new IDA maintenance credit.

6.06 Together with bilateral technical assistance, particularly for the workshops, this group has provided a fairly comprehensive range of counterpart and practical field training, for inspectors, supervisors, foremen, mechanics, fitters and electricians, operators and drivers, administrative staff, and surveyors and laboratory technicians. With their efforts, and the earnest support to training provided by the Government, the country was able successfully to absorb a five-fold increase in its maintenance equipment park in one year. Thanks to simultaneous large efforts by the Government to increase the number of nationals graduating from local and foreign engineering faculties, Rwandan engineers and technicians in the Roads Department have increased from 3 in 1971 to 26 in 1977. But the technical assistance consultants also saw early that a more thorough complementary classroom training effort would be worthwhile. A program was prepared, and, while it could not begin in 1975 as originally intended mainly due to shortage of appropriate staff releasable, it is now starting.

6.07 As a result of these changing needs and perceptions, the foreign staff in the Roads Department, mainly concerned with advice and training of one sort and another, has gone from nine in 1971 to 20 in 1973 and further to 22 in 1978. The new formal training program will cover almost all Departmental staff above the grade of laborer in its first four years, but continuation of training is envisaged, with some continued foreign assistance for at least a further five years and probably longer.

6.08 Thus training needs to be recognized as a continuing ongoing function, and institutionalized to give both training considerations sufficient weight in the formulation of overall Department policy, and training staff adequate recognition and career prospects. Training is needed not only for new recruits (who may be numerous if losses of staff to the private sector are high; 10% a year is not unusual) but also for recycling existing staff. Some Governments such as those of Romania and Korea have already introduced broad standard requirements that all Government staff undergo at least minimum amounts of training every three or five years. Modern maintenance training programs supported by the Bank usually provide capacity for at least brief training of between one-tenth and one-fifth of total staff above the grade of laborer each year.

6.09 Training of local staff to facilitate the communication process and carry on the training program is essential. One particularly successful establishment of a lasting training center for mechanics and operators was by ILO in Syria in 1972-73. After initial delays in obtaining counterparts and classrooms, equipment was installed, 500 trainees put through the course and the going center handed over to nine Syrian instructors who had meantime been trained abroad. A supplementary ILO project in 1975 provided a short-term specialist to help organization.

6.10 In countries where training within the Highway Department is likely to continue to be important, it may warrant the creation not only of a special unit or section such as the large majority of Departments have now set up, but of a division or other unit of higher administrative standing. This is mainly because of the need to attract high-quality professionals and to give them participation in decisions on such a wide range of matters as recruitment policy, placement and promotions, training dimension of field operations, and equipment

standardization. The division chief would be responsible for planning, promoting and coordinating all forms and levels of training, in coordination with development of relevant training outside the Highway Department and in accordance with a Departmental policy statement on staff training.

6.11 Among training techniques, there is evidence that short classroom courses followed by actual practice in a working brigade, under close but arms-length observation by the teacher, has considerable potential. This is the essence of the Training Production Unit concept, successfully applied in the past in Tanzania and currently in Oman and Zaire, among many other countries; it offers trainees more responsibility and opportunity to learn from their own mistakes. One of the most successful features of the Rwanda experience was use of the equipment when it first arrived in 1975 not for the maintenance operations envisaged under the project, which would necessarily be dispersed, but for building a short road close to the capital where staff could be carefully screened, trained and improved under full supervision before being sent to the field. For the difficult task of successfully training illiterate mechanics and operators, important advances have been made in recent years in audio-visual techniques, and successfully applied in Sierra Leone, for example.

6.12 Trainee motivation is a key factor for training success. Partly it is a question of attitude, and thus much dependent on appropriate leadership and esprit de corps in the Highway Department. But salary and status both during the training period and subsequently are crucial. One problem is paying people during training or, in other words, recognizing in overall Departmental personnel budgeting that a certain percentage of staff should at any one time be undergoing training. Thus a small degree of overstaffing is warranted. In a few countries potential new recruits can be attracted to training even without salary during the training period (an interesting experiment in Rwanda is to offer free food provided by the World Food Program to trainees). But the budgetary implications of staff absence on training, travel to the training center, etc. do have to be recognized.

6.13 From the longer-term point of view, staff need to feel that good performance during and after training will be appropriately rewarded in salary and status. This is often a major problem due to the rigidities of civil service salary structures. In some countries good training opportunities are seen as a partial substitute for good salaries, but that means that high turnover is inevitable. In some Highway Departments the argument has even been reversed, to justify a low training effort on grounds that trained staff will quickly be picked up by the private sector. That seems a negation of a critical development role that Highway Departments should be playing. Moreover, in practice, provided there is reasonable flexibility on the part of the civil service authorities, it is often possible to provide at relatively low overall cost the small individual adjustments in salaries, functions and status that can retain a reasonable minimum of trained staff for the maintenance department.

6.14 In its support of training, the Bank may need to give even more attention to adequate program preparation and to the crucial importance of continuity of effort. Although preparation of training components has improved, their readiness for execution at the stage of loan approval is still generally considerably less than that of engineering works, for which detailed engineering is normally required to be largely completed by the time of loan negotiations.

In particular, the personnel inventory, corresponding to the collection of basic data on soils and hydrology for engineering works, may need to be done more often before loan approval, in order to permit an effective training program to swing rapidly into motion in good coordination with the physical components of a project.

6.15 As regards continuity of programs, once the importance of the problem is recognized, the Bank may be able to provide adequate support through new loans as it did in the cited case of Rwanda. But there are situations where new projects unfortunately get delayed. In that circumstance, there would seem much to be said for sustaining such a vital and yet relatively inexpensive organism as a training center over the interim period until a new project loan is made, by lending for the relatively small foreign exchange costs of continuing operation -- mainly technical assistance with minor amounts of equipment or other supplies. This would have been of great value in several African countries over the last decade, and could now be done relatively easily, by a small extension of items eligible for financing under the Bank's Project Preparation Facility, or by separate arrangements of similar administrative simplicity.

VII. The Management Dimension

7.01 Improvement of the efficiency of maintenance operations is the key issue in a few countries, in the sense that existing budget allocations would probably be adequate if they were efficiently spent. But it is an important issue in most countries, both because of the scope that does exist for accomplishing more with available funds and because of Finance Ministry tendency to cut requested budgets on grounds the funds would not be well spent. Typical major problems are: excessive numbers of staff, inadequate staff supervision, low equipment availability and utilization, low productivity compared with organizations performing similar functions in the private sector, diversion of equipment and effort to non-maintenance works, and periodic running out of funds.

7.02 Most of these problems have a heavily structural side to them, which can only be solved over time -- by staff attrition, introduction of more flexibility in public service personnel policies, training of middle management, setting up better arrangements for assuring a regular flow of spare parts, limiting interference by politicians and local dignitaries, and finding alternative ways of meeting local authorities' need of modern equipment for their own works. Some of the suggestions in other chapters on the organizational framework for maintenance, equipment accounting and staff training are relevant.

7.03 But besides promoting, internally and with other branches of Government, appropriate structural change, the main responsibility of management is to make the best of the existing situation to run its own program as effectively as possible. In this area a great deal of emphasis has been placed in many Bank-assisted projects on the application of modern management systems for planning, programming, budgeting, scheduling, control and data collection. It is hard to avoid the conclusion that it has often been overdone. In some cases the management information systems introduced by the consultants simply proved too complex to function or to spread beyond headquarters offices. In others they were excessively dependent on unavailable or poorly functioning computers. More often, elaborate reports have continued to be produced at lower

levels of the hierarchy, but no effective system has existed for checking them and anyway they have been used little, for lack of qualified headquarters personnel to handle them or lack of interest. Basically the effort seems to have been spread over too many systems, with too much detail, and with insufficient attention to the structural constraints on management's ability to act.

7.04 The experience suggests that management may in fact be helped most by introducing new systems on a phased basis, and rather cautiously and slowly except where responding directly to its own already felt needs. At the earliest stages it may be best not to attempt much regular collection of detailed data for planning purposes (such as quantities and costings, traffic counts and deflection measurements), or even for detailed comparison of actual against plan, leaving this to periodic special efforts. Instead, the focus should be wholly on two systems -- one largely a matter of training and attitudes, and the other a full-scale management information system, but limited to equipment operation and maintenance.

7.05 The first might be entitled an 'intensive field inspection/supervision system', but its main purpose would be to develop a strong sense of discipline and responsibility throughout the maintenance organization. For written reporting it would rely on existing traditional budgeting and accounting systems at the level of the field division/subdivision and the simplest (normally pre-existing) work-order and daily activity reporting at the crew level. Rather it would concentrate on developing and inculcating a responsibility down the line for supervisors regularly (and on an ad hoc, unexpected basis also) to visit the units of which they are in charge, to commend/criticize as appropriate the quality of work done, and thereby to impress upon the staff the standards to be attained and how to attain them.

7.06 Compilation of reports, other than essential expenditure accounts, for forwarding to higher levels would be specifically discouraged in order to free as much scarce management and supervisory time as possible for the inspection/education visits. The only new regular report that might be considered would be a simple six-monthly or yearly report by field supervisors on the state of the roads (surfaces, shoulders, drainage, etc.) under their responsibility. This report could strengthen the effort to focus supervision on basic purposes and the adequacy of final output, and could be used for control and planning purposes. It was pointed out in Chapter II that assessment of maintenance quality is still in good part a matter of vision and feel even when the most complex measuring systems are available. Correspondingly the most important need is to develop such faculties throughout the staff: a concept of appropriate standards, and a sense of responsibility for keeping the roads under their charge up to those standards whatever might be the necessary effort.

7.07 Equipment operation, service and maintenance is an area where sense of responsibility for proper use and regular checks is of course equally essential. But here it is also both easier and more necessary to maintain full written records, especially if, as suggested elsewhere in this report, equipment is made the responsibility of a separate division which hires it out to the field-division. And in the case of equipment, the records for each piece -- on servicing, spare parts use, availability, utilization and productivity -- do need to be regularly compiled, verified and analyzed.

7.08 Such data are essential for decisions on the reallocation of equipment among field operations, decisions on spare parts stocking and ordering policies, identification of pieces which should be scrapped, pros and cons of standardization in each equipment type, and revision of hire charges. Moreover, the records on equipment utilization and productivity, compiled in the right way, can often yield the best information on quantities and costs of any major maintenance works done; highway maintenance management does need to have accurate records of periodic maintenance work accomplished, and this can be obtained very largely from the log-books of the responsible mechanized units.

7.09 Many countries have nonetheless encountered difficulties in introducing accurate and reliable equipment recording and accounting systems, largely because of the high degree of precision continuously required of all involved -- operators, mechanics, store-clerks and their supervisors. One of the advantages of the hire-charge system is that it gets more of the transactions and operations on to a monetary basis, with two parties to the deal so that precision -- on matters like down-time due to awaiting a spare part -- automatically takes on more importance. But the main point is probably to recognize that good management information systems for equipment are both very important -- to assist efficient use of the large amount of capital tied up in equipment fleets -- and quite difficult, so that they should be brought to smooth operation before embarking on systems for other areas.

7.10 An appropriate third step in development of management systems, highly useful but not to be attempted before effective field inspection and equipment information systems are well started, may be the establishment of a small Organization and Methods unit in headquarters. This unit would not normally gather large amounts of data from all the field divisions, but would do spot studies in highly focussed problem areas, at the request of top management. For instance, questions may arise about performance in a particular subdivision, on which management needs a more thorough assessment than line management would have the time to produce; or a small-scale time-and-motion type study may be worthwhile, to explore a suggestion for cost-reduction of some regular maintenance procedure; or a detailed comparison may be needed between different makes of equipment, and their performance records, before placing a new order. The function is one of trouble-shooting studies, avoiding the twin dangers of becoming so involved in day-to-day management that no time is left for the small-scale but serious studies, or so swamped with regular reports from the field as to be little more than a repository of history.

7.11 With good leadership the need will of course gradually be felt, and the means will become more available -- mainly in highly educated middle-level manpower -- for compilation of basic crew-level reports into regular written subdivision, division and region reports on maintenance operations, and for new types of reporting coverage. There are multiple alternative dimensions and emphases in such reporting systems, with possible scope ranging from broad average quantities and costs for different classes of road to full detail for each individual road stretch. Rather than design an overall system, even for phased introduction, at the outset, it may be best to simply let the system grow by following the priorities that emerge from the interaction of field managers, headquarters management and Organization and Methods unit, taking care only to replace and combine rather than to duplicate whenever a new information need is posed.

7.12 Well before the stage of full sophistication is reached in cost information systems for maintenance operations on the road network, it is likely that the need will be felt for collection of planning data more regularly than the 'periodic basis' suggested earlier. A high priority in this area will be traffic counts for roads with traffic in excess of say 100-200 vehicles per day, initially possibly every two years, but soon annually in different seasons. Equally important for the paved network in those countries which face the problem of extensive kilometrages of light pavement will be deflection surveys, which should really be done on an annual basis to give sufficient information on the rate of deterioration. With the development of scientific work on the measurement and interpretation of road roughness, regular roughness surveys are likely to be seen increasingly as a useful aid in defining the type and nature of maintenance interventions that should be undertaken each year. Eventually these surveys might be combined with any broader pavement rating system to make a permanent road inventory, as a tool for deciding maintenance priorities and strategies.

7.13 The rather slow build-up of planning and costing information systems suggested here means that overall planning, and economic analysis of maintenance projects such as those financed by the Bank, will have to continue to be heavily based on the kind of judgment that now guides maintenance planning. But the most important implication for the Bank is that projects should directly support and reflect the highway department's management systems in the sense of including targets for key objectives highlighted in those systems. This is what is called in recent Bank maintenance projects an Action Plan, by contrast with the maintenance project or program itself. While the latter would define the basic standards and quantities of road maintenance to be accomplished, the Action Plan would identify, for the same project period, key instrumental variables and the measures needed to raise them to higher levels of performance. The Action Plan focusses directly on operational efficiency and short-term measures to improve it. Sometimes these might be matters of institutional or personnel-policy reform, or relate to inspector training.

7.14 But the wide evidence of difficulties in efficient management of equipment suggests that for many countries Action Plans should now focus on equipment-related targets -- such as availability and utilization rates and productivity by type of equipment, and adequacy of parts inventories. Developed with the aid of experienced mechanical engineering judgment, the Action Plan would detail and phase the specific measures in terms of corrective and preventive equipment maintenance programs, organizational and management improvements, spare parts ordering procedures, etc., required to reach the targets. Because equipment is such an important item in all but the most basic routine maintenance operations, equipment performance indicators carefully interpreted can in fact be one of the best summary indicators of the trend in overall highway maintenance performance. They merit more emphasis than they have had in the past.

VIII. The Institutional Dimension

8.01 As for other functions in the economy, a country's institutional arrangements for highway maintenance -- the allocation and distribution of responsibilities between public and private sectors, between different levels

of Government, and within the central Government -- have to evolve with development and with change in the broader socio-political structure of a country. The institutional issue is thus above all a matter of moving in the right direction, toward an organizational structure that will apply available resources most effectively to the tasks to be accomplished. The Bank has traditionally given considerable attention to Governmental institutional structures for handling national highway maintenance. Many of the changes it has supported have been accomplished, although often with delays of several years, and the results appear generally positive except where structures proposed proved more elaborate than the countries could effectively staff.

8.02 The first institutional question for countries to ask themselves, which has probably often not been answered thoroughly enough in the past, is how much of the highways work it is desirable to do in-house, by force account, rather than by contractor. The answer to this question deeply affects the nature and size of the Government organizational structure that will be required. Many maintenance forces find themselves heavily diverted in practice to construction and betterment, which might many times better be left to contractors.

8.03 Several past Bank-supported maintenance projects would likely have been much more successful if they had followed the example of the first maintenance project in Niger, where it was specifically agreed to leave not only new construction but also periodic maintenance to private contractors, in a first stage. Some other countries have changed policies in the course of a project, deciding for example, as in the case of Chile and Pakistan, to contract out most equipment maintenance rather than rely on the workshops supplied or planned to be supplied under the project. Use of contractors can reduce the burden on scarce Government staff and also bring lower costs as a result of competitive pressures to efficiency which it is hard to duplicate under civil service arrangements. An even flow of relatively small jobs, such as regravelling and resealing, is moreover an ideal way of fostering nascent domestic contracting industry.

8.04 These periodic maintenance tasks can be specified and couched in contractual terms fairly readily and are in fact normally contracted out in many of the more advanced developing countries and industrialized countries. The same is true of certain easily measurable goods and services, such as supply of crushed stone and asphaltic premix, or transport of materials.

8.05 Routine maintenance as a whole is much less frequently contracted out, but a number of countries are moving in that direction. Yugoslavia is a case in point, using state enterprises specialized in maintenance works. Chile has experimented, and Brazil is setting up pilot contracts making use of the measures and controls that have had to be developed for the ongoing delegation of maintenance responsibilities from the Federal to the State Governments. Thus ways are being found to write a fair and acceptable contract even for routine maintenance; essentially it consists in evaluating and specifying the aggregate amount of work in each category to be done per km per year on each given section of road, with emergency repairs payable at tabulated unit prices.

8.06 While the requisite size of Departmental central and field staffs will depend heavily on the proportion of work given over to contractors, the key considerations in securing an effective allocation of internal responsibilities are rather constant: first, to delegate specific responsibilities as far as is

compatible with availability of trained staff and minimum feasible size of unit, and, second, to develop a good system of communication and inspection. The large majority of Bank-promoted institutional changes have in fact been to pin responsibilities more precisely -- for instance by setting up a separate Roads Department within a Public Works Ministry, or a separate Maintenance Division within a Roads Department -- or, less frequently, to pool related responsibilities -- such as that for mechanized maintenance in several districts -- in units of minimum efficient size.

8.07 Development of inspection systems, which is a matter mainly of inspector training and to a lesser extent of regular written reporting, has also received some attention, but taken longer to achieve. One particularly interesting and promising attempt to develop delegation/inspection systems appropriate to local circumstances, and on a very large scale, is the highly decentralized "autonomous brigade" form of organization used in Zaire since 1975, under which the engineers in charge of each brigade have considerable freedom of action, under general supervision (including field visits) from a special headquarters department.

8.08 Somewhat separate from the issue of the main structure for road maintenance proper -- actual work on the roads themselves -- is that of responsibility for the equipment used in maintenance. This responsibility, including equipment procurement, parts and supplies, and equipment maintenance, is often in the hands of a separate Equipment Division or Mechanical Branch within the Highways Department, with its own agents distributed among the field subdivisions and/or with a separate network of regional workshops where scale considerations require greater geographical concentration. Since flexibility of operation in matters such as regional allocation of equipment and purchase of spare parts, and tight costing and controls, are critical to the effective use of the large amounts of capital tied up in equipment, many developing countries are moving in the direction of endowing such Division with an autonomous budget, charging rentals to the field subdivisions and other users. This requires the availability of adequate accounting and management resources. One of the few developing countries where such a system is already functioning very effectively is Malawi.

8.09 Institutional arrangements for maintenance of rural roads vary greatly between countries -- from total decentralization into the hands of county authorities, with little outside help, to full inclusion with the national network under the responsibility of the Highway Department. But, whichever the case, they are seldom working effectively; in many countries rural roads have barely been maintained at all in the past.

8.10 Particularly interesting solutions to this problem are various ways of securing local contributions, specially in the form of labor for routine maintenance. For instance, Kenya is redeveloping the system of the local lengthman, responsible for routine maintenance of 1-2 km of road with the aid of tools and materials provided by the Roads Department, and remunerated at a rate somewhat below the normal official minimum wage but in excess of what he would otherwise be able to earn. Similar systems, known as cantonnage, are still being applied in many of the more densely populated Francophone countries. In Mexico, an enormous variety of systems is used, depending on what fits best with local traditions, but in many areas agreements (convenios) are signed with specially

formed local road maintenance associations under which the latter agree to provide each year certain amounts of labor, again below the normal minimum wage, to help keep their roads in good condition. Effective functioning of these labor-intensive maintenance systems is particularly dependent on good supervision. Such imaginative means of lowering the costs of maintenance and securing local contributions to it will be essential to help solve the vast problem of rural road maintenance.

8.11 For paved roads, and especially the trunk network, another institutional responsibility which needs to be clearly provided for is axle load control. Setting of axle load limits is generally the responsibility of the Ministry of Transport or similar body, while enforcement and operation of vehicle weigh-stations may be in the hands of its officials or of the regular police force. But what the experience of extensive failures and difficulties in this area shows above all is that the establishment and effective introduction of appropriate limits needs to be done in close cooperation with trucker associations and within the broader framework of trucking industry regulation. Technical innovations, such as automatic weighing scales, can help considerably but even they cannot be effective if the truckers feel that the treatment they are afforded is unfair, e.g. because rates are kept at a level where they have to overload in order to break even. Thus load control has become more effective in Honduras and Kenya recently, when rate increases were allowed simultaneously.

8.12 Among these institutional issues there is little doubt that the most important, which the Bank may need to raise more continually than it has in the past, is the trend in the split of maintenance work between public and private sectors. Many countries appear to be trying to do more in-house in the Highway Department than would best serve their socio-economic objectives. The financial and technical assistance to the development of the domestic construction industry which is increasingly being included in various types of Bank/IDA lending should help to widen the scope for choice.

IX. The Role of Consultants

9.01 More traditional consultant functions such as preparation of bid documents, bid evaluation and contract supervision, are only a minor part of the contribution needed from consultants in most maintenance programs. Lay-out of alternative organizational arrangements and implementation of the client's chosen one, advice on procedures and systems, training both on the job and in courses and seminars, preparation of manuals -- in a word, institution-building, in the broadest sense -- are the main jobs that consultants are called upon to help with in maintenance. The task is the more complex, because human considerations -- sociological, cultural, political, attitudinal -- are often more important than technical ones.

9.02 Foreign consultants and technical assistance, under increasingly precise terms of reference, have been heavily involved in both preparation and execution of almost all the major maintenance improvement efforts undertaken with Bank assistance. While they have often been overoptimistic with regard to what they would be able to accomplish, consultants have generally

played a vital role in what was done -- recognized by borrower and Bank in the form of the contract extensions that have characterized the large majority of maintenance projects. The most common problem was simply that for a great variety of reasons -- ranging from insufficiently precise terms of reference or guidance, to serious and widespread lack of counterparts -- their expensive time was sometimes partially wasted.

9.03 One of the most difficult problems in guiding and managing consultants is to set the right balance in their work between preparation of manuals and systems (for accounting, costing, traffic counting, etc.) and actual training of personnel. Systems leave something tangible at the end and can last; personnel may leave. Yet there is little doubt that in many cases too much attention was given to preparation of systems, and insufficient attention to training and human contact. Some consultant teams had too much management expertise and insufficient field experience, and most had too little training expertise. It has become increasingly clear that teams need to include some individuals with principal experience in, and primary responsibility for, training; and that these trainers themselves need to be guided away from overemphasizing development of training systems towards developing living programs which will continue with local teachers after departure.

9.04 Foreign technical assistance needs to be neither accepted too readily nor resisted too strongly. There are cases where the authorities regret in retrospect that the foreigners were not given executive responsibilities initially and others where change was greatly slowed or stopped by abrupt reduction of expatriates. There are also cases where foreigners have been used too long as a general prop, particularly in the relatively dull field that maintenance is considered to be. A few projects supported by the Bank were simply started with more technical assistance than could be well used, given the scarcity of counterparts and local staff to work with them. The absorptive capacity for technical assistance in a maintenance program can increase over time, as local staff increases and overcomes any initial reluctance to take advantage of the expatriates.

9.05 While the consultants and technical assistance used in Bank-supported maintenance programs have come from a very wide variety of countries, firms and sources, extremely little of it has come from other developing countries, whose people might sometimes be best placed to help, given the importance of cultural and attitudinal aspects. Strong private consulting groups on highways have developed in some of the more advanced developing countries, partly because of outdated salary ceilings in direct Government service. But for the same reason they are often very heavily booked within their own countries. Some such countries are even considering the contracting out of maintenance management to consultants.

9.06 Even European consultants new to Bank work have in several instances caused serious delay in procurement of maintenance equipment by their unfamiliarity with Bank procurement procedures. Some special Bank effort to orient borrowers' consultants who are new to Bank projects in matters such as this could help usefully to widen the consultancy sources used for maintenance projects and perhaps introduce some groups with important potential advantages in similarity of cultural and linguistic background to that of the borrowers.

X. Conclusions

10.01 The highway maintenance problem has proved very resistant to past Bank efforts to help countries deal with it, whether by inclusion of general covenants in highway construction loan agreements or by financing projects specifically addressed to the problem. Bank vigilance about observance of maintenance covenants -- and clarity with regard to the size of the future maintenance burden being built up with the development of a highway network -- can help. But the obstacles to effective fulfillment are often too deep-seated to be successfully overcome by a loan covenant alone. This is indeed demonstrated by the Bank's own experience with projects aimed specifically at maintenance improvement. Such projects have frequently run into difficulties in properly coordinating all the component elements of people, organizations, money, equipment and materials and, even more, in building up structures and mechanisms to sustain such coordination.

10.02 The evidence is that the large majority of developing countries would earn high enough returns from additional efforts to expand maintenance, or to make it more efficient, that such efforts should be a high-priority claim on their own budgets, and that countries are increasingly recognizing this. But the difficulty is to carry through such efforts effectively.

10.03 The obstacles are multiple -- public attitudes, staff capacities, budgeting and planning procedures, and organizational techniques. Building up the necessary institutional capacities is a great deal more difficult than building road networks. The effort has to be concerted and sustained. The evidence is abundant from past experiences that satisfactory basic systems can seldom be established in less than 15-20 years, and that further help may still be needed thereafter to deal with expansions of the maintenance workload and avoid retrogressions.

10.04 While a central feature of the Bank's role is to analyze the economic priority and balance of maintenance programs to be assisted, the justification for Bank financing of maintenance is not so much the expected physical impact of the hardware covered as the contribution such lending, and related arrangements, can make to building up the institutional framework for adequate performance of maintenance on a continuous basis. For this purpose, broad programs designed to make headway on each of the interrelated obstacles and constraints, and a steady concentration over many years on their successful accomplishment, are essential.

10.05 The Bank should therefore continue and expand the emphasis it has been attaching to road maintenance and the more practical expression it has been giving to this emphasis in Action Plans, training programs, development of financial mechanisms, etc. To further strengthen this effort some specific suggestions emerge from this review, whether reemphases of practices that have been used in the past or minor modifications. They can be briefly summarized as follows:

- (1) The prime criterion of eligibility of maintenance expenditures for coverage out of a loan/credit should be consistency with capacity-building objectives, including the development of regular domestic funding mechanisms to sustain maintenance over the long term. Thus,

in cases where country financial constraints are very severe and yet development of routine maintenance capacity is a top priority, the Bank should be prepared to participate, on a declining basis, in the incremental recurrent costs of routine maintenance, while changes in budgetary priorities are being effected and new domestic financing mechanisms developed (paras. 5.14-16 and 5.26).

(ii) The trend of amounts (in real terms) for each of the upcoming four or five years that should be spent on routine maintenance, periodic maintenance, and maintenance and renewal of equipment, and the proportion of the sum of these amounts to be covered out of local resources should be closely analyzed in highway loan appraisals. The local share should be expected gradually to rise as countries develop. Except in cases where maintenance funding has been no problem, loan documents for all types of highway project should include agreed targets (paras. 5.23-25).

(iii) The Bank should pay close continuing attention to borrowers' fulfillment of maintenance covenants. To help expedite decisions already accepted in principle, it should not hesitate to apply remedies available under ongoing loans or to hold up new construction loans when compliance is inadequate (para. 3.09).

(iv) The Bank should actively assist the more effective operation of separate autonomous funds, with commercial hire-charges and accounting, for maintenance and renewal of equipment fleets. It should support measures that contribute to this objective. One such measure would be Government onlending of loan/credit proceeds devoted to equipment at shorter commercial terms, with transfer of exchange risk. Another would be phasing of equipment procurement over several years to avoid excessive bunching of equipment maintenance load and renewal need. Particular attention should be given to arrangements to enable maintenance of spare parts inventories at an economically efficient level -- about 15% of total value of equipment park in countries far from main supply lines (paras. 5.17-21).

(v) All loans for projects with maintenance components should normally include an agreed Action Plan of steps to achieve the performance improvements sought. Such Plans will often relate to equipment availability and utilization and may require experienced mechanical engineering input into their formulation. Loan documents should list selected key targets summarizing the expected outcome of this Action Plan and corresponding to quantities whose actual values will be generated by the borrower's management information system (paras. 7.13-14).

(vi) Careful attention should be given to the merits of using private contractors, as opposed to Departmental forces, whether for whole categories of work such as regravelling, or particular tasks such as supply of asphalt or transport of materials. Measures should be developed, wherever needed and appropriate, to assist private contractors to develop capacity to handle such jobs (paras. 8.02-05 and 8.12).

(vii) Feasibility studies for maintenance programs and projects should normally be required to consider explicitly the economic loss that would result from cutting annual expenditures 20% below the recommended level, and the economic gain that would result from a 20% increase. Such analysis can contribute substantially to demonstrating the potential value of incremental expenditures on maintenance and to improving program composition (paras. 2.18-2.21).

(viii) The Bank should try, in cases where Highway Department staffing is a major constraint, to have full Personnel Inventories undertaken at the same time as essential engineering preparation work is done, i.e. before a loan for a project is approved. This area needs more attention because the whole pace at which maintenance programs generally, and training components in particular, can be carried out depends critically on personnel numbers and capacities (para. 6.14).

(ix) Considerably greater importance than in the past should be attached to achieving continuity in maintenance development efforts and especially in related training programs. Where new loans/credits which would include funds for necessary extension of training programs may be delayed, and financing from other sources is not already confirmed, the Bank should be ready to lend the small amounts necessary to prevent an ongoing program from lapsing. The necessary financing for an interim period could be provided through either the existing Bank/IDA Project Preparation Facility or another similarly flexible arrangement (para. 6.15).

(x) The Bank should encourage Highway Departments' publicity efforts and the formation of road user associations. It should promote a concern with the problems of road maintenance among public-interest groups. Such support, for instance by provision of appropriate documentary material, could help significantly to build up public support for Governments' increased maintenance efforts (para. 4.05).

(xi) When a borrower selects for a maintenance project a consultant firm which has not previously worked with Bank/IDA projects, the Bank should give special attention to familiarizing the team with Bank experience on topics such as management systems and training. It should make sure they are fully aware of Bank/IDA procedures on matters such as procurement (paras. 9.05-06).

(xii) The Bank should arrange a meeting of foreign assistance agencies active in the highways field to discuss this paper. The purpose of such a meeting would be to minimize recurrence of cases where foreign lenders have worked at cross purposes with regard to highway maintenance, and to assist the development of a shared approach to the matter (paras. 3.09, 4.05 and 5.11-12).

S. Agriculture

Department of Sociology
State University of New York
Binghamton, New York 13901

March 23, 1979

Mr. Michael Cernea
Room D-709
The World Bank
Washington, D.C. 20433

Dear Mr. Cernea:

I half-suspect that you've forgotten our conversation of earlier this year, though I certainly hope you have not. I was the mission sociologist with the Dosso Agricultural Development Project appraisal mission headed by Jan Weijenberg in November-December, 1978.

You may recall that during a brief conversation we had, you suggested that I prepare some notes or a statement of some kind on sociology, sociologists, and World Bank projects. In truth, our conversation has been on my mind ever since then, and I have been hoping to have something for you long before now. Alas, much has gotten in the way and here I am, very late indeed, with my notes.

The revisions of the sociology working paper required quite a bit of time and energy, and all along I was trying to decide how to prepare something something at once useful for you yet not terribly detailed and excessively long. I have managed the problem, though in doing so have opted for a very general discussion of some key issues. Nothing is resolved, and if you had hoped for more detail, I fear you will not find it. As I suggest in the attached paper, any more detailed treatment would require more than a memo sent for circulation--it would require added reflection and not a little discussion. Since time and energies on both ends (yours and mine) seem rather limited at the moment, it seems that further elaboration will have to wait until later. Though I must confess that I would be willing.

Of course, any reactions you or anyone else might have to the attached remarks will be very welcome, and I do thank you for the opportunity to discuss the issues a bit. I apologize for the tardiness and the very very preliminary nature of the comments, however.

At the same time, I should like to ask you if the Bank has any ongoing social science research and/or evaluation programs either in Washington, D.C. or elsewhere. If so, I would be very interested to know more about them, particularly as a number of the points discussed in the Dosso sociology working paper strike me as being of fundamental importance---to Niger and the people in the Dosso region, and to the Bank as it seeks to better understand "social" factors in development.

Mr. Cernea -- Page 2.

I realize that the Bank has severe restrictions on the use/participation of consultants in projects resulting in any way from their particular consulting activities, and I certainly agree with this--in principle. Nonetheless, it strikes me that there are a number of significant problems to investigate in the context of or somehow related to the Dosso project (in particular, concerning women in the domestic economy, changes in land tenure and production patterns, and migrations), and at the very least, I would like to know whether it might be possible--with Bank permission and support--to look into some of these issues?

Any information you might be willing or able to provide will be very much appreciated.

Please do accept my apologies for this late delivery; I do hope it will be worth your while. It was good to meet you in Washington; hopefully we will be able to once again discuss these issues before too long. Your greetings to Immanuel Wallerstein were delivered and acknowledged.

Sincerely,


Thomas M. Painter

Mr. Charles Weiss, PAS

March 23, 1979

D. Hughart, EWT

Comments on "Locally-Built Windmills as an Appropriate Technology for Irrigation of Small Holdings in Developing Countries" by Ken Darrow, draft dated February 26, 1979

... figures, as on pages (7/3) and (7/4) without any indication of what they include or exclude or what a partial price...

1) The draft includes a modest amount of poorly documented analysis sandwiched into a great deal of repetitious flackery.

2) The draft concludes (or presupposes, if the first sentence is to be taken literally) that "appropriate technology" windpowered water pumpers (ATWPWPs) are the technology of choice and are viable economically for millions of small farmers (1-2 ha) who need low-head (up to 5m) irrigation pumping in areas with average windspeeds of about 10 km/h or more. Competitiveness is not claimed for larger areas or higher heads because these applications require greater pumping power and electric and internal combustion engine (ICE) powered pumps offer greater economies of scale.

3) The draft returns repeatedly to the examples of Crete and Thailand as demonstrations of ATWPWPs' viability. At least the Crete example can probably be written off as a special case in which water has an exceptionally high value. The quote on page (4) indicates the water is used to grow vegetables for export, and page (5) describes how the water is stored in masonry tanks to minimize losses. The Thai case is less clear, but page (4/3) indicates that ATWPWPs are used there to lift water into salt ponds as well as rice paddies and the quote on page (13) describes both Crete and Thailand as cases in which "valuable cash crops are grown." Similarly, the justification cited on page (14) for ATWPWP investments in Tanzania is based on the value of irrigated onion plots. If ATWPWPs are only viable in high-value cash-generating operations, they are much less interesting than if they can also be justified for irrigating staple crops on basically subsistence farms.

4) If I understand page (12) correctly, it is saying that the typical Java farmer could get an additional 700-1400 kg (milled) of rice per hectare per year with no additional inputs other than an ATWPWP. Taking the figures from pages (7/3) and (7/4), these would pump between 30 and 50 m³ per day. If the winds blow steadily through the dry season and if the way to irrigate rice is to put on a little water each day through a 100-day season, then an ATWPWP on a one hectare farm would apply a total of 30-50 cm of water to the dry season crop. It may be worth checking whether:

- (a) rice needs more water than that,
- (b) the water needs to be applied in larger doses in specific phases of the growing cycle,
- (c) the increased yield claimed would also require additional inputs of seed, fertilizer, labor, extension, and "civil works" associated with the windmill, and,
- (d) the dependability of the wind may be a critical factor to consider if the farmer is risking a significant investment in inputs.

DH
D. Hughart:ako

5) The cost comparisons with electric and ICE powered pumps are less well documented than they ought to be. Surely, the costs of the conventional alternatives can be established with better bases than the assumptions made on pages (7/2) and (7/4). On the ATWPWP side, we can't expect any "hard" cost data, but it seems almost useless to cite cost figures, as on pages (7/3) and (7/4) without any indication of what they include or exclude or what materials prices, wage-rates, and exchange rates were used in deriving them. Given that they are built entirely or nearly so with locally available materials and unskilled or semi-skilled labor using hand tools, it is hard to know what an estimate, for example, of US\$480 for an ATWPWP in Crete would correspond to in Indonesia or anywhere else without knowing how the US\$480 figure was calculated.

6) It is probably unreasonable to ask Mr. Darrow to rework his figures on irrigation benefits or on conventional pumping systems, so I would suggest that either the draft be abandoned as a "good try" that didn't result in what was hoped for or that Mr. Darrow be asked to strengthen the treatment of ATWPWPs. Specifically, he may be able to:

- 3) (a) comment on the technical, performance, and economic data and computations on WPWPs (AT and otherwise) and fill in some of the blanks in the tables in Marcus Sherman's report, "Practical Application of Wind Powered Water Pumps" submitted to ESCAP in February 1977.
- (b) correct Sherman's treatment of capital charges. Sherman adds a straight-line depreciation charge to an interest charge based on the full, undepreciated amount to get an annual fixed cost, and
- (c) construct for at least some of the ATWPWPs a breakdown of costs (by skill) and materials (by item or type) sufficiently detailed to allow at least rough estimates of the cost in country X based on wage rates and materials prices there.

7) Perhaps it would be useful to ask Mr. Notes for guidance in establishing parameters for irrigation water requirements, net benefits of irrigation, pumping heads, and costs of conventional pumping technologies for a number of proto-typical small farmers in different parts of the world. The Bank presumably has enough experience in irrigation by now to be able to construct a yardstick with which to measure claims made for windmill (and solar) irrigation systems.

8) Page (9) may have been written to offend economists. The arguments are muddled, but as I understand them, they add nothing of substance to standard economics and instead show Mr. Darrow's ignorance of what he is attacking.

cc: Messrs. F. Notes, AGR
A. Armar, PAS

DH
D. Hughart:ako

V.S. Aquilino
cc: S Environment

Mr. George F. Darnell, AGR

March 22, 1979

R. Goodland, Environmental & Health Affairs

Locust Control

RG

Herewith are some suggestions you requested on O. C. La. Lav's locust campaign document of 22 February 1979, annexed: *None*

1. According to my sources (Dr. Fred Whittemore, literature, FAO, AID, EPA) Malathion and Fenitrothion (i.e. the less objectionable pesticides in this instance) are cost-effective on winged swarms, but less so on the unfledged hopper stage.
2. However, since it is economically and ecologically preferable to concentrate on hoppers rather than on vagile swarms, then fenitrothion may not be as effective. Even so, hopper control from the ground is environmentally preferable (e.g. jeep-mounted nozzle blower), rather than from the air as proposed.
3. This is clearly a complex case, so more information has been requested in case you require more input (e.g. Dr. Whittemore and FAO's Roy of the Plant Protection Service). Since dieldrin has been banned because it has been shown to be unsafe in well-nourished and medically pampered nations, the Bank should avoid its use whenever possible. If, after having internalized the environmental costs (e.g. demise of non-target species, especially predators) associated with the use of the broad-spectrum, destructive generation of pesticides, their use is considered unavoidable, then the Bank should insist on some surveillance system to monitor the degree of damage. As soon as more information arrives, I'll pass it on. Let me know if you require further amplification.

Attachment

- cc: Dr. Lee, OEHA
 Mr. J. C. Collins, AGR
 Mr. Pickering, AGR
 Mr. J. Gamba, WAP
 Mr. D. Sutherland, AGR
 Mr. P. Sihm, AEP
 Mr. J. Coulter, CGR
 Mr. Armar, CPSVP
 Mr. Overby, OEHA

RG:OMc

S. Aguiar

Mr. David Rix, CAD

March 22, 1979

Jim Goering, AGREP

Proposed Enhancements to APAS

1. Pursuant to our meeting of March 16, we propose the following list of APAS enhancements for investigation by CAD: (The listing is in our approximate order of priority, although we recognize this may change when the cost of each enhancement is known more clearly.)

- i) A facility to copy into a without project file the base-year entries of all commodity, product-line, farm and subarea data from the with project files which have base-year reference years.
- ii) Provision of another farm budget table, complementary to the existing FBG, which focuses on the financing of the farm operation by indicating annual loan receipts (short-, medium and long-term) and debt service (annual payments of interest and principal on short-, medium- and long-term loans). This table, specified in financial terms, would be integrated with a debt service module capable of calculating the above annual payments under common repayment systems with alternative assumptions regarding interest rates, grace periods and repayment period. The format of such a table is approximately indicated by Tables 4.5 and 4.6 in the Von Pischke memorandum to me of January 26 (circulated at our meeting of March 16). The underlying program should be capable of calculating financial rates of return to: (a) all resources in the farm operation and (b) the farmer's own resources.
- iii) A facility to increase the ease with which sensitivity testing of APAS results can be performed. This requires a capacity to: (a) examine the effects on RORs and NPVs of percentage changes in individual project inputs or outputs and (b) calculate "switching values" for selected variables (the percent change in the variable from its base case value which results in an NPV equal to 0). Two options to achieve this enhancement should be costed: (a) to create an output workfile which could be read by other programs such as CB/Display and (b) to develop a "stand alone" capability within APAS to perform this sensitivity testing by altering input data before processing by APAS.
- iv) A facility to simplify the inputting of data in cases of delayed entry of crops and farm types. A possible approach is indicated in Ms. Y. Kimaro's memo to me of March 8, copied to you.
- v) A facility to convert financial prices to economic prices for all project inputs and outputs by indicating for each a single conversion factor.

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- vi) Suppression of the existing feature which automatically prints all commodity, product-line and farm tables for each delayed entry situation.
- vii) Creation of a facility to automatically print the incremental table where the report command is given for the with and without project situation.
- viii) Addition to the FIO, SIO and PIO tables of information showing cropped area for each commodity.
- ix) A single command to request the printing of a basic group of tables, viz., those containing information most commonly used in the staff appraisal report and annexes. All should relate to years 0, 1-5, 10, 15 and 20 of the project and include with, without and incremental versions:
 - Those based on financial values
 - . Annual prices of all inputs and outputs (ANP)
 - . Monthly prices of all project labor (MOP)
 - . Commodity budgets for all project outputs (CBG)
 - . Farm budgets for all project farm models (FBG)
 - Those based on economic values
 - . Annual prices of all inputs and outputs (ANP)
 - . Monthly prices for all project labor (MOP)
 - . Economic ROR and NPV for each project component and the total project (SBC, PBC)
 - Those based on physical relationships
 - . Distribution of project farm models (FSD)
 - . Physical inputs and outputs for project commodities (CIO), farm models (FIO), project components (CIO) and the total project (PIO)
 - . Monthly labor supply and demand for individual components (SML) and the total project (PML)
- x) Integration of a herd simulation model into APAS.
- xi) A facility to permit calculation of RORs to new farms or project components for which no without project situation exists.

xii) A facility to show the distribution of project net incremental benefits (in percent or value terms) by farm type and project component. In the subarea tables, this information could be shown by farm type. On the project-level tables, this could be shown by subareas/components.

2. My hope is that a number of the above improvements (e.g., vi, vii, viii, ix and xii) can be considered as part of normal APAS maintenance and thereby effected in the near future.

3. My understanding is that CAD will undertake a preliminary costing of the above proposals as the basis for more detailed investigation of a selected number of enhancements considered to be of highest priority. That investigation would then result in a joint CAD/AGR request to the Priorities Committee for resources to undertake such enhancements in FY80.

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

cc: Agriculture and Rural Development

Mr. D. Pickering
Ms. Y. Kimaro
N. Pinto
Messrs. H. Kim
G. Temple

APAS Advisory Group

Messrs. G. Ashkenazi (LCP)
V. Bhargava (EMP)
E. Goetz (EAP)
J. Tillier (WAP)
P. Whitford (AEP)
M. Wilson (ASP)

TJG:vau

OFFICE MEMORANDUM

TO: Mr. G. F. Donaldson, Chief, AGREP

DATE: March 22, 1979

FROM: J. D. Von Pischke and C. M. Lewis *Ch*SUBJECT: Disbursements for Agricultural Projects -
Proposal for Quantitative Study

1. This memo proposes that a basic quantitative desk study be undertaken of disbursements and disbursement rates for Bank and IDA projects in the agricultural sector. The objective of the proposed study would be to describe recent disbursement performance, using simple ratios and computer graphics. The study would not seek causes of disbursement performance, although it would provide a basis for the formulation of hypotheses concerning such causes. This proposal is in response to concern that project implementation may be facing constraints which retard disbursements.

2. The proposed study would compare selected disbursement variables with expectations, which could be adjusted to reflect delays in implementation, all in terms of quarterly statistics. The purpose of the study is to ascertain whether and how disbursement patterns have diverged from expectations and to identify changes over time and differences between various classifications of disbursements. The study would be limited in scope, dealing with analysis of financial data. It is expected that results of the analysis would offer insights into any disbursement problem which may exist, which would permit design of further studies directed at the identification of underlying qualitative constraints which may be responsible for lags in disbursement.

3. The study would begin with disbursement schedules found in appraisal reports for agricultural projects approved from FY68 through FY78. This time frame should permit meaningful analysis of results over the last five or six years. Analyses would be based on comparisons of actual experience with expectations, and with disbursement expectations suitably lagged to reflect delays in implementation, as outlined in Appendix 1.

4. Comparisons of actuals and expectations would be made by project type, for annual tranches of projects, and by country or region. No attempt would be made to break disbursements down by type (e.g., on farm investment, institutional support and technical studies) at this stage, although the analyses would provide a basis for such disaggregation in further research (para. 6 below).

5. The study would use RORSU and P&B data wherever possible (see Appendix 3) and would also involve primary data gathering. Data would be computerized. It is possible that computer program size limitations and analytical economy would require screening out small projects, with no material impact on study results.

6. The following manpower allocation within the Division is proposed for this study. Mr. Lewis would be responsible for the project on a day-to-day basis and for obtaining data from P&B and RORSU (30 man-days). He would supervise one support staff person who would load and operate the computer

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quantity*

72-78

(30 man-days). Mr. Temple would be responsible for setting up any programming modifications required for the analysis and for guidance concerning data handling (10 man-days). Mr. Von Pischke would take responsibility for analytical design and would work with Mr. Lewis in drafting the study report (20 man-days). Mr. Scandizzo would be kept fully informed of the study and its progress (3 man-days). Messrs. Scandizzo and Lewis will conduct further studies of disbursements, incorporating the same data and hypotheses suggested by this study.

7. This project could begin on April 1 and be completed by July 1, assuming that 20 man-days of support staff time could be provided in April and 10 man-days at Mr. Von Pischke's discretion thereafter.

8. Since this memo was put into first draft, it has come to our attention that RORSU is considering entering appraisal estimates of disbursements onto its computerized project data system. We endorse this step. As indicated in para. 6 and Appendix 3 of this memo, cooperation with RORSU is envisaged in the proposed study.

CC and cleared with: Messrs. P. Scandizzo (AGREP)
G. Temple (AGREP)

cc: Messrs. D. Pickering (AGR)
T. Davis (RORSU) ✓

JDVPischke:vau

Disbursement Variables to be Analyzed

1. D_e = expected disbursement profile

The expected disbursement profile would be derived using appraisal report estimates for agricultural projects:

- a) approved between July 1, 1968 and June 30, 1978
- b) classified by region and country
- c) classified by FY of approval
- d) classified by project type
- e) for each FY
- f) by cross tabulations of the above, where meaningful.

Changes in this pattern would indicate whether projects were trending towards longer or shorter disbursement horizons. Calculations of expected disbursement profiles by project type and country or Region weighted by Bank/IDA lending patterns would indicate the expected disbursement consequences of changes in lending patterns.

2. D_a = actual disbursement profile

The actual disbursement profile would be derived from actual disbursement data, and would be manipulated for analysis in the same manner as D_e .

3. $\frac{D_a}{D_e}$ = base disbursement rate

Base disbursement rate analysis would ascertain how actuals diverge from expectations and how this divergence has developed over time for the various categories of projects listed.

4. $\frac{D_a}{D_{ee}}$ = adjusted disbursement rate

where D_{ee} is the expected disbursement level lagged for delays in project effectiveness. Analyses would be conducted as for the base disbursement rate. Differences between the base and expected disbursement rates would indicate the effects of delayed effectiveness on disbursements. The adjusted rate would permit a basis for identifying disbursement delays which are not directly related to delays in project effectiveness.

5. D_1 = disbursement time lag

This measure would indicate the number of fiscal-year quarters by which disbursement lags behind appraisal expectations. If, for example, actual disbursement reached US\$1.0 million by the close of the third quarter of FY 1977, while this level had been targeted for the close of the third quarter of FY 1976, the disbursement time lag would be 4 quarters.

6. D_{1e} = adjusted disbursement time lag

The adjusted disbursement lag would compare, in terms of time, the progress of actual disbursements against appraisal expectations lagged for delays in effectiveness.

Basic Output Format

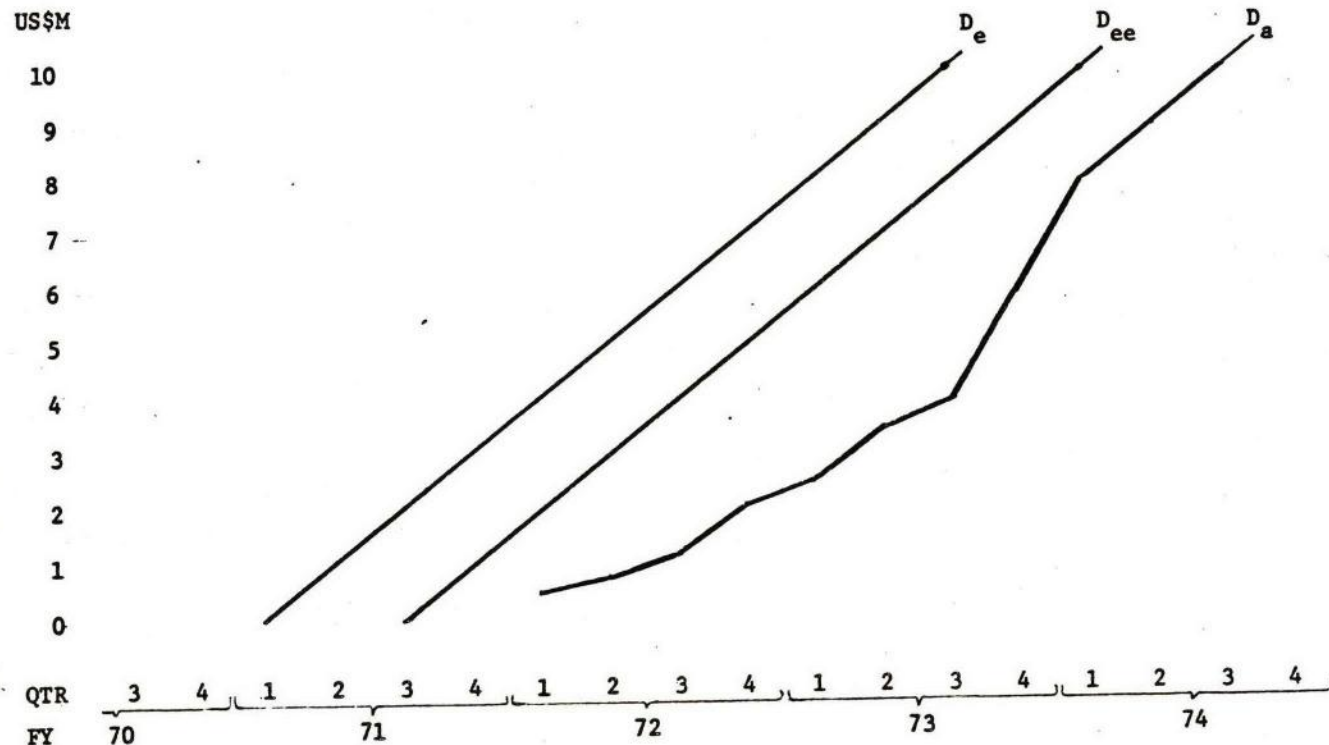
The basic output format shown below would be produced for each project included in the study. This format would include a graphic representation of expected disbursements, expected disbursements adjusted for delays in effectiveness, and actual disbursements, plus disbursement rates for each relevant quarter. The data given would be the basic building block for various aggregations outlined in Appendix 1, which would employ the same format. Additional abbreviations used in the format are:

FY	=	fiscal year
BDR	=	base disbursement rate
ADR	=	adjusted disbursement rate
CBDR	=	cumulative base disbursement rate
CADR	=	cumulative adjusted disbursement rate
QTR	=	quarter (of a fiscal year)
DISPRO	=	disbursement profile

Country: Epitoria
Project ID Code: 3EPTL01
Project Title: Livestock I

DISPRO:

US\$M



De	0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0				
Dee	*	*	0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0		
Da	0	0	0	0	.5	.8	1.2	2.0	2.5	3.5	4.0	6.0	8.0	9.0	10.0
Da/De = BDR	*	0	0	0	.50	.30	.40	.80	.50	1.00	.50	*	*	*	*
CBDR	*	0	0	0	.13	.16	.20	.29	.31	.39	.49	.60	.80	.90	1.00
Da/Dee = ADR	*	*	0	0	.50	.30	.40	.80	.50	1.00	.50	2.00	2.00	*	*
CADR	*	*	0	0	.25	.27	.30	.40	.42	.50	.50	.67	.80	.90	1.00
D1	0	1	2	3	4	5	5	5	6	6	6	6	4	4	4
D1e	*	*	0	1	2	3	3	3	4	4	4	3	2	2	2

Data Source Inventory

Data dealing with disbursements come from three sources: (1) the disbursement division's computer system (which includes various specifics on the type of disbursement and whether it was used for local costs), (2) P&B's compilation of Forms 590 includes revised disbursement estimates for each project being supervised on a quarterly basis, and (3) P&B also has a separate data system which uses disbursement information in order to project, for financial purposes, future outlays. This data system is presently being entered into the main P&B "focus" system which will soon make it accessible to the present RORSU input and output matrixes, as well as the Time Recording System information.

ERIU - UNACC
cc - ✓ S - Agriculture

Mr. William Clark, VPE

March 22, 1979

Ted J. Davis, AGROR

ACC Task Force on Rural Development Held in Rome, March 5-12, 1979

The ACC Task Force on Rural Development held its annual meeting in Rome on March 5-12, 1979. I attach the report of the Task Force to ACC which includes a list of participants. FAO as lead agency has considerably improved its leadership both in terms of administrative procedures as well as substantive input into the work of the Task Force. This, I believe, stems from the higher priority given to "poverty oriented rural development" by the FAO Director General and to the appointment of a new Director, Mr. Rafael Moreno, in October 1978. The work of the Task Force and FAO's attitude toward it is obviously influenced by the extensive and intensive preparation by FAO for the World Conference on Agrarian Reform and Rural Development to be held in July 1979. (See my memo of March 22, 1979 to you on the preparation committee meeting for this Conference.)

The main issues in the deliberations of the Task Force were:

- 1) Considerable progress in the ACC coordinated country level exercise in three of the five countries in which the exercises were undertaken. The three countries making progress are Bolivia, Liberia and Lesotho. Much less positive actions have resulted in the other two countries, Somalia and Samoa. The Bank was and is closely associated with the exercises in Bolivia and Liberia and its own missions have been quite positive concerning the national programs of rural development which are being supported under the ACC coordinated approach.
- 2) The ACC Task Force had a report from its own "Working Group on Monitoring and Evaluation of Rural Development Projects", in which the Bank had a leadership role in the substantive effort of this Working Group. The Task Force adopted the report of the Working Group on Monitoring and Evaluation concluding that much progress has been made toward developing a common terminology and attaching great importance to the recommendations which should have a direct bearing and significant impact on the activities of the UN Agencies.
- 3) Because of the Bank's considerably different role as a specialized agency, it has not been closely associated with the ACC recommendation relating to Program Harmonization. A Working Group on Program Harmonization reported to the Task Force which included recommendations for defining programs in broad sub-categories directly related to poverty oriented rural development. This, in itself, is a step forward in ACC cooperation. The Working Group's additional recommendation to focus on harmonization in the area of "rural infrastructure" was not accepted. Instead the Task Force suggested the more crucial area of manpower training and informal education. It was suggested that the Inter-Secretariat Working Group (ISWG) on Agricultural Training and Education, a

contractual entity formed by UNESCO, FAO and ILO be the pattern for an expanded effort at agency harmonization on the subject of rural development manpower training and informal education.

Much concern was expressed by members of the Task Force with respect to the recent reorganization of the ACC machinery. Mr. Mathiason, the representative from the UN, explained that the ACC Preparatory Committee has been abolished and that most committees and task forces of the ACC were to be abolished. Apparently the exception will be those ACC activities which have an ongoing operational function and will likely include the Nutrition Subcommittee and the Inter-Organization Board (statistics). It was, however, felt by most representatives to the Task Force that the Task Force on Rural Development would be continued in some form and made certain recommendations which required this continuity. The Bank's position has been that the Task Force or some successor machinery should remain in existence at least through the 2 year experimental country level exercises referred to above. The Task Force recommended an evaluation of these exercises at the end of 1979 which should give information on which to determine the future course of the Task Force on Rural Development.

The regular back-to-office report will follow.

Attachment

cc: Messrs. W. Baum, CPSVP; M. Yudelman, AGR; D. Pickering, AGR;
L. Christoffersen, AGR; P. Coffin, LCP; F. van Gigh, WAP;
J. Wallis, LCP; A. Clift, WAP; B. Thoolen, AGR; D. Turnham, AGR
Mrs. Shirley Boskey, IRD
RORSU Staff

TJDavis/cc

OFFICE MEMORANDUM

ERIO - W
 cc - ✓ S - Agriculture
 yellow

DATE: March 22, 1979

TO: Mr. William Clark, VPE

FROM: Ted J. Davis, AGROR

SUBJECT: Meeting of the Preparatory Committee for the World Conference on Agrarian Reform and Rural Development Held in Rome, March 12-16, 1979

This large meeting was called by FAO to discuss preparation for the World Conference on Agrarian Reform and Rural Development scheduled for July 12-20, in Rome. The Preparatory Meeting was in effect a "Committee of the Whole" to which all UN member governments were invited to send representatives as well as all UN agencies, other inter-governmental bodies and a large number of NGOs. Representatives from approximately 130 member governments attended most of whom were backed by 3 or 4 alternates. Approximately fifteen UN agencies' representatives attended; about 10 other inter-governmental bodies; approximately 20 NGOs and 3 liberation organizations for a total of about 700 persons.

Documentation for the preparatory meeting was prepared in 6 languages. Likewise there was the simultaneous translation of the proceedings in the same languages. The officers of the Preparatory Meeting were selected by consensus on the first day and included as Chairman, Mr. Aziz ul Haq of Bangladesh. Most of the discussions (speech making) derived from comments on the reports of the five regional preparatory meetings undertaken in the summer and the fall of 1978. Considerable discussion also was taken up on the agenda for the World Conference, the rules and procedures and, in spite of FAO resistance, on the draft program of action.

The officers for the World Conference were elected and include as follows:

Conference Chairman	Ex President Caldara (Venezuela)
Conference Vice-Chairmen	Tunisia
	Senegal
	China
	Poland
	Portugal
Credential Chairman	Ambassador Borin (Italy)
Rapporteur General	Minister Rao (India)
Commission I Chairman	Minister Malacello (Tanzania)
Commission I Vice-Chairmen	Egypt
	Ireland
	Vietnam
Commission Rapporteur	G. Ericsson (Sweden)
Commission II Chairman	Minister Judith Hart, (UK)
Commission II Vice-Chairmen	Ghana
	Colombia
	Czechoslovakia
Commission II Rapporteur	M. Trucola (Yugoslavia)

The Preparatory Meeting was overall much better than one could have expected. The arrangements and preparatory documentation were, on the whole, very good and FAO should be recognized as having done a good job in a very complex situation. Most of the debate was "responsible and responsive". There were, of course, the expected political tirades, including the Eastern Bloc led by the Russians against Western capitalist countries, Vietnam against the Chinese, PLO against Israel, OAU against Rhodesia and South Africa, etc. There were many references to the New International Economic Order and the need for the Conference to recognize the importance of rectifying North/South imbalances in economic terms of trade.

Overall the Preparatory Meeting was a success in raising the consciousness of the participants and the development of a common terminology which, I think, bodes well for the World Conference. The Bank should feel complimented in that the terminology derives, to a great extent, from its work over the last 5 years. For the first time FAO was coming out with a strong poverty approach! "Imitation is the highest form of praise!"

Two matters need Bank's attention and action: (a) comments on the draft Program of Action and (b) the designation of the Bank's delegation.

(a) The draft plan of action has two sections which may have implications for the Bank's future programs. These involve the draft recommendations on Item XI - Official Development Assistance and Item XII - Program for Action for FAO in Cooperation with other Organizations of the UN Family. (Excerpts attached). I met in caucus with the representatives from other UN Agencies every day during the Preparatory Meeting. We discussed these recommendations and the large agencies - UN, UNESCO, UNDP, UNIDO, and ILO feel that the recommended activities for FAO are too much like those of a "super monitoring agency" in the area of rural development and feel somewhat offended by such a "super agency" role for FAO. As we review this draft plan of action, we should be mindful of the work of the World Food Council which has a primary function of monitoring resource flows to increase food production. In recent meetings of WFC working groups much discussion has focused not only on investments directly relating to food production, but also complementary investment in rural areas which increase the productivity of rural populations and social services investments. Therefore, a proposed monitoring of resource flows by FAO may be duplicative of the WFC efforts. On the other hand, FAO is obviously an important agency and we should not discourage the obvious shift in its priorities toward poverty oriented multisectoral rural development. We should discuss this matter in depth in the next 2 weeks and perhaps confer informally with some of the other agencies. Comments are due before the end of April 1979.

(b) I was advised by Mr. Santa Cruz, the Secretary General of the Conference, that they were indeed fervently hoping that Mr. McNamara would attend and address the opening session. Mr. Santa Cruz plans to visit all or most of the specialized agencies this Spring to urge the chief executives to attend. Representatives of several of the agencies with whom I talked; i.e. UNDP, UNESCO, ILO, UN, indicated that it was likely that their Directors General would come to the opening session in July. This, of course, should

be informally confirmed through our regular contacts. In any event, I feel that the Bank should be represented by a delegation which would confirm Bank's dedication and leadership in the field of rural development.

A full back-to-office report will follow.

Attachment ✓

cc: Messrs. W. Baum, CPSVP; M. Yudelman, AGR; D. Pickering, AGR;
L. Christoffersen, AGR; P. Goffin, LCP; F. van Gigch, WAP;
J. Wallis, LCP; A. Clift, WAP; B. Thoolen, AGR; D. Turnham, AGR
Mrs. Shirley Boskey, IRD
RORSU Staff

TJDavis/cc

XI. OFFICIAL DEVELOPMENT ASSISTANCE

The volume, terms and conditions of official development assistance, both bilateral and multilateral, are of great importance in supplementing national efforts by developing countries to achieve objectives of rural development. Developed countries should make every effort to raise the flow of official development assistance to the target set under the Second Development Decade of 0.7 percent of gross national product. Both aid-giving and recipient countries should seek to expand the amount and proportion of development aid going to agricultural and rural development, and consider direct support for programmes of agrarian reform. Rural development is a huge, complex and long-term undertaking, requiring a sustained commitment of financial resources and technical assistance to achieve its goals.

Cooperation among developed and developing countries and international institutions should include action to:

- (1) Endorse and support the goals and targets set up by

each country as outlined in Part I, Section I C, and pledge substantial increases in development resources to achieve them.

- (ii) Increase the resources of international financial agencies explicitly committed to rural development and alleviation of rural poverty and ensure that their lending capacity for such purposes is guaranteed through long-term replenishment of resources.
- (iii) Revise the lending criteria for rural development projects in the least developed countries. In particular:
 - (a) financing of local and foreign exchange costs should be allowed without distinction;
 - (b) recurrent as well as capital expenditures should be eligible;
 - (c) relatively more resources should be made available for programme support as compared to project financing;
 - (d) no project or programme, whatever its size or nature, should be a priori ineligible for aid under a poverty-oriented aid strategy and criteria for selection should consider both direct and indirect impact on development and poverty;
 - (e) greater attention should be given to complementarity of projects between and within sectors; and
 - (f) greater emphasis should be given to pre-investment studies and preparation of projects.
- (iv) Re-examine criteria of appraisal, evaluation and monitoring of small-scale rural development projects with a view to increasing responsibility of institutions at the local level, quicker absorption of aid, greater responsiveness to the needs of programme beneficiaries, and more active people's participation in programme implementation.
- (v) Ensure that proper weight is given to the comparative advantages of concentrating external financing in major physical infrastructure works, such as large-scale irrigation projects, etc.
- (vi) Provide international assistance on an untied basis and insofar as feasible on a grant basis and cancel outstanding official debts of the least developed and poorest countries.
- (vii) Give priority in allocating aid to those countries which have demonstrated a strong and continuing commitment to poverty-oriented rural development strategies, including redistribution of assets.

- viii) Provide through existing financial institutions additional development assistance, to finance direct and indirect costs of agrarian reforms, i.e., cost of implementation and administration (including land surveys, establishment of land records, provision of legal services, etc.) as well as indirect costs involved in any transitional post-reform dislocations in production, provision of inputs and services, and marketing and storage.
- (ix) Study the possible use of additional development assistance to facilitate agrarian reforms through financing compensation for expropriated assets (land and water rights).
- (x) Guarantee increased food aid for a stipulated period to countries undertaking major agrarian reforms to make up for any transitional fall in domestic production.
- (xi) Ensure that food aid, when received on a regular basis, is absorbed in such a way that disincentives to domestic production are minimized, that equity and efficiency in distribution are maintained, and that supplies of food for lower income groups are stabilized.

XII. PROGRAMME OF ACTION FOR FAO IN COOPERATION WITH OTHER ORGANIZATIONS OF THE UNITED NATIONS FAMILY

In order to help implement this Programme of Action, the Conference recommends that the Food and Agriculture Organization of the United Nations, in cooperation with other members of the United Nations system, consider the adoption of the following specific measures in the field of agrarian reform and rural development:

A. Monitoring Agrarian Reform and Rural Development

- (i) Develop, in consultation with other organizations in the United Nations system, acting through the appropriate ACC machinery and in cooperation with Member Nations, a set of internationally comparable indicators for each developing country, and collect and analyse data pertinent to them in order to monitor progress toward respective national targets of rural development as laid down in Part I, Sections 1 C and D of this Programme of Action.

- (ii) Review and evaluate, in cooperation with other organizations of the United Nations system, the environmental impact of rural development programmes, projects and technology currently in use and incorporate considerations of ecological balance and environmental preservation in their design.
- (iii) Monitor and evaluate the adequacy and terms of flows of resources, both domestic and foreign, in relation to the targets set for rural development and submit the results of these evaluations through its Governing Bodies to appropriate international fora.
- (iv) Undertake periodic reviews with each country and with relevant international organizations in respect of their policies and programmes for the achievement of the objectives and targets outlined in this Programme of Action.

B. Analysis and Dissemination of Knowledge

- (i) Collaborate with Member Governments and other international institutions in socio-economic and technological research, including, inter alia, national economic policies for rural development; institutional factors of administration, programme implementation and delivery of inputs and services; alternative systems of organization of production; the socio-economic impact of new technology; appropriate technology for small producers and for crops grown and consumed by the poor; and problems of rainfed agriculture.
- (ii) Strengthen the indigenous capacity for research in developing countries in terms of institutions and physical facilities, and promote research training in technical and socio-economic aspects of rural development with emphasis on poverty alleviation.
- (iii) Promote exchange among developing countries of analysis and experience in the areas of agrarian reform and rural development, especially those noted in (i) above.

C. Technical Assistance Activities

- (i)** Take the lead, in cooperation with other organizations of the United Nations system, in expanding assistance programmes to developing countries in all areas of this Programme of Action relating to national actions.
- (ii)** Review and analyse, in cooperation with other organizations of the United Nations system, performance and progress in technical assistance activities and set targets for the proportion of such technical assistance which should directly serve the rural poor, and periodically evaluate whether these targets are being met.
- (iii)** FAO to assist Member Nations, in cooperation with other members of the United Nations system, to undertake an evaluation of the impact of foreign investments, in particular those of transnational corporations, in the field of rural development and assess their compatibility with the objectives of the host countries.

D. Assistance in Mobilizing Resources

- (i)** Act as a catalytic agent for the stimulation of investment in rural development with special regard to projects and programmes which have a significant impact on poverty alleviation, and serve as a focal point through the FAO Investment Centre for promoting project assistance from external agencies in the field of rural development.
- (ii)** FAO, in cooperation with external financing agencies, both bilateral and multilateral, should expand its activities in the identification, formulation, implementation and monitoring of agrarian reform and rural development projects.

non-Regional File

OFFICE MEMORANDUM

*S. Agriculture*TO: Mr. Montague ~~Indel~~

DATE: March 22, 1979.

FROM: J.C. Collins *JCC*SUBJECT: Meeting with representatives of Murray-Carver, Inc.,
manufacturers of oilseed processing equipment.

1. The representatives had already met Mr. Duester of EMENA region. They were concerned over what they considered to be inadequate design for oil extracting plant in two Bank projects - Sudan Rahad Irrigation and Syria Oilseeds. In both cases there was no provision for delinting of seed of medium staple Acala type cotton prior to oil extraction. They considered the heavy lint cover of this seed would result in unacceptable losses of oil and furthermore create mechanical problems when a solvent extraction process was being installed. They were of the opinion that frequently consultants were designing oil extraction plant for a specific crop, such as cotton, without having had previous experience with building plant for that crop, though possibly having considerable experience with other oil crops having different design requirements.

2. I pointed out the considerable reliance placed on the Borrower or his consultant for the feasibility and final design of such specialized components in Bank projects and furthermore the Bank's reliance on specialist consultants in the appraisal and subsequent supervision of such components for which "in-house" expertise might not exist.

3. The representatives informed me that they were able to offer adequate consulting services in this field as well as design and supply capabilities and expressed an interest in possible employment in the project formulation role. I put them in touch with Mr. Groen's office in order that they might register as specialist consultants on the Bank's list. I also informed them concerning the advertisement of forthcoming opportunities for international tender for items such as equipment in Development Forum.

JCCollins:cms

cc: Messrs. Pickering	Rowe
Christoffersen	Haynes
Hendry	Goffin
van Gigch	Duester
Blaxall	Groen
Golan	Dickerson

Mr. Graham Donaldson, Chief, AGREP

March 19, 1979

Gordon Temple, AGREP

CBDISPLAY Phase-One: Progress Report

1. With the addition of a special facility for calculating switching values and the correction of bugs found during program testing, the first-phase development of CBDISPLAY is complete.

Extension Efforts

2. Two program manuals have been written for Bank staff who plan to use the program. The first manual, Introduction to CBDISPLAY, provides a simple description of the program's language; it also serves as a permanent manual for support staff who help analysts type raw data into the computer. The second manual, Users Guide to CBDISPLAY, presents a complete description of the program's command structure and its subroutine facilities. The Users Guide is for experienced users who plan to use CBDISPLAY for complicated data manipulations and expanded sensitivity analysis. After the release of CBDISPLAY at the end of January, these manuals were used in a training program which has introduced CBDISPLAY to over sixty project analysts from the Bank's agriculture and rural development divisions.

3. Experience with analysts who have used the program during the last month suggests that CBDISPLAY:

- (a) will reach a large set of users more quickly than anticipated;
- (b) will increase computer use in appraisal work;
- (c) will improve the economic analysis of projects.

User Acceptance

4. As with any new program I had expected an initial reluctance among analysts and secretaries to adopt CBDISPLAY, particularly among those who had several years' experience using CBPACK. However, that has not been the case. My experience has been that after one analyst in a division begins to use CBDISPLAY, he soon tells his colleagues about the program and they begin to use it. For example, staff in one division recently discussed the possibility of ordering a DEC-writer computer terminal, but decided against it because they felt insufficient work would be done on the terminal to justify its costs. Then, one of the division's analysts used CBDISPLAY on our DATAGRAPHIX and discovered that the program could save as much as 80% of the time usually required for economic and sensitivity analysis. In a few days the analyst had convinced the other economists and financial analysts in his division to learn the program and had convinced the division chief to order a DATAGRAPHIX terminal.

continued ...

Impact on Computer Use

5. As users become familiar with the capabilities of CBDISPLAY, they discover that a computer can save a great deal of the time that they currently spend manipulating numbers on a calculator. Consequently, users are beginning to do more of their work with the computer and less with a hand calculator. Furthermore, many CBDISPLAY users tell their colleagues how much easier and quicker working with a computer is, and as a result, their colleagues try using the computer to do work that might otherwise been done on a calculator. The result is a gradual growth in computer use for project work.

Impact on Economic Analysis

6. With the tools available before the release of CBDISPLAY, project analysts spent a great deal of their time performing simple sensitivity analysis that was generally restricted to a few proforma changes in aggregate benefit and cost streams. Because these simple tests required so much time, analysts could not perform the more important tests of changes in basic project parameters (development periods, adoption rates, and build-up rates). But as project analysts use CBDISPLAY, they discover that simple tests can be done quickly, leaving more time for complicated but informative analysis. For instance, having completed traditional sensitivity tests, analysts try calculating switching values and discover that this new approach to sensitivity analysis reveals much more about the relative importance of unforeseen changes to project success than does traditional analysis. Other examples of CBDISPLAY's impact on project analysis include:

(a) Structuring a Credit Project

A project analyst had to structure a credit project for twelve different farm types within a given project budgets. By using the subroutine facility in CBDISPLAY, the analyst could test different time distributions for farm types entering the project and still just exhaust the project's budget. Because each test required only a minute of the analyst's time, he could experiment with many different ways of structuring his project before he chose the final one.

(b) Fractional Lags of Annual Data

The subroutine facility combined with the lag command in CBDISPLAY allowed an analyst to test the effects on the project's internal rate of return of changes in the timing of costs and benefits. The analyst discovered that much of the project's surplus was an illusion that derived from ignoring the timing of costs and benefit within the project year. The analyst restructured his data using a period of six months and discovered that minor short-falls in incremental yields during the early years of the project would greatly affect project incentives.

continued ...

(c) Use of Plotted Output

In the Ivory Coast Forestry Project the analyst used the switching-values graph and the present-values graph produced by CBDISPLAY (see attachment). These graphs helped the analyst justify the decision to invest in timber rather than rubber and demonstrate the range of internal rates of return that could be expected from the project.

(d) Analysis of Drought

Several analysts have taken advantage of CBDISPLAY's subroutine facility to analyze the impact of different drought patterns on project viability. Had CBDISPLAY not been available, these analysts would not have examined the impact of drought simply because alternative computer tools would have required too much time.

Consulting Assistance

6. Because the number of analysts who use CBDISPLAY is growing more quickly than anticipated and because these analysts are using CBDISPLAY for more complicated analysis than expected, demands on the Division for consulting assistance may be unusually heavy through the end of May. During this period Ms. Kimaro and I may be needed to help Ms. Pinto respond to requests for assistance. After the end of May, I would expect that Ms. Pinto could meet most requests for consulting assistance with occasional assistance from Ms. Kimaro and me.

cc: Messrs. Yudelman, AGR
Pickering, AGR

Attachment

GPTemple:oh

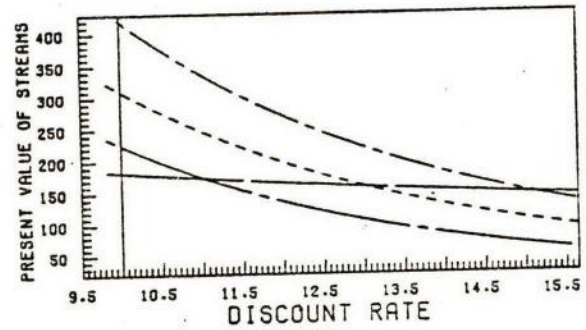
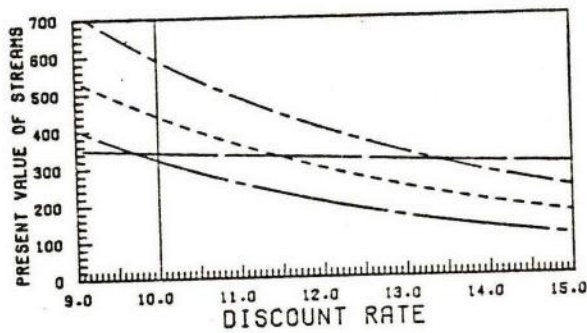
IVORY COAST FORESTRY PROJECT

GRAPH I
INTERNAL RATES OF RETURN AND PRESENT VALUES AT VARIOUS DISCOUNT RATES

CFAF THOUSANDS PER HA

PROJECT 20,000 HECTARES

PROGRAM 68,000 HECTARES



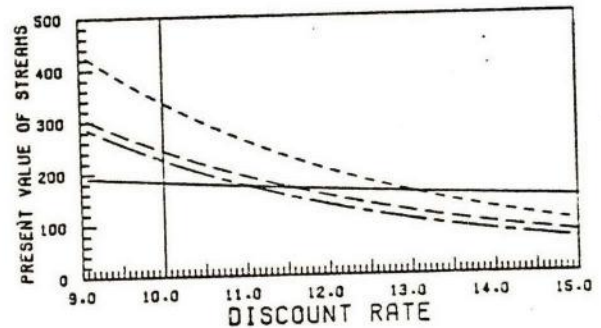
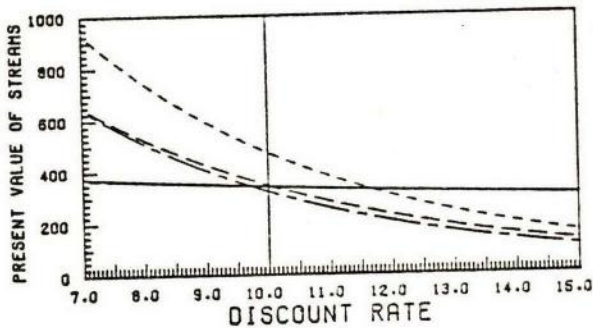
I

LEGEND

- _____ = 10.00% - OPPORTUNITY COST OF CAPITAL
- _____ = INCREMENTAL COSTS
- _____ = MINIMUM BENEFITS
- _____ = MEAN BENEFITS
- _____ = MAXIMUM BENEFITS

II

MINIMUM BENEFITS 100% OF PRODUCTION ON LOCAL MARKET -- NO REVENUES FROM SALVAGE LOGGING OR THINNINGS
MEAN BENEFITS 20% OF PRODUCTION EXPORT QUALITY - 80% DOMESTIC -- 50% OF POTENTIAL REVENUES FROM SALVAGE LOGGING AND THINNINGS
MAXIMUM BENEFITS 60% OF PRODUCTION EXPORT QUALITY - 40% DOMESTIC -- 100% OF POTENTIAL REVENUES FROM SALVAGE LOGGING AND THINNINGS



III

LEGEND

- _____ = 10.00% - OPPORTUNITY COST OF CAPITAL
- _____ = COSTS FINAL CUT A
- _____ = COSTS FINAL CUT B
- _____ = BENEFITS FINAL CUT A
- _____ = BENEFITS FINAL CUT B
- _____ = BENEFITS FINAL CUT C

IV

COSTS

COSTS ASSOCIATED WITH FINAL CUTS "A" AND "B" ARE IDENTICAL. THEY RELATE TO A 31 YEAR INVESTMENT FOR THE PROJECT -- 46 YEARS FOR THE PROGRAM. COSTS FOR FINAL CUT "C" (SHORT ROTATION) COVER 27 AND 42 YEARS FOR THE PROJECT AND PROGRAM RESPECTIVELY

(Note: at this scale of plotting the streams are indistinguishable)

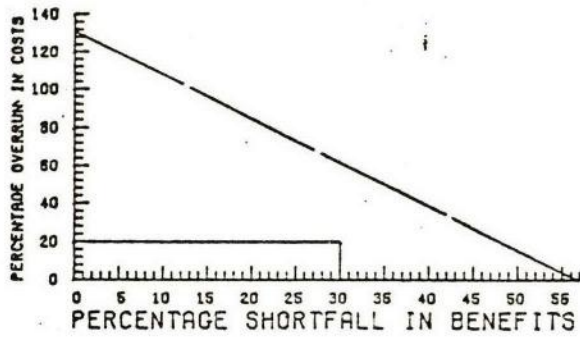
BENEFITS

FINAL CUT A 60% EXPORT QUALITY 40% DOMESTIC QUALITY
 FINAL CUT B 100% DOMESTIC QUALITY 25 YEAR ROTATION
 FINAL CUT C 100% DOMESTIC QUALITY 20 YEAR ROTATION

(no revenues are assumed from salvage logging or thinnings)

IVORY COAST FORESTRY
PROGRAM 68,000 HECTARES

GRAPH 1
LOCUS OF COST/BENEFIT SWITCHING VALUES
AT OCC OF 10 PERCENT



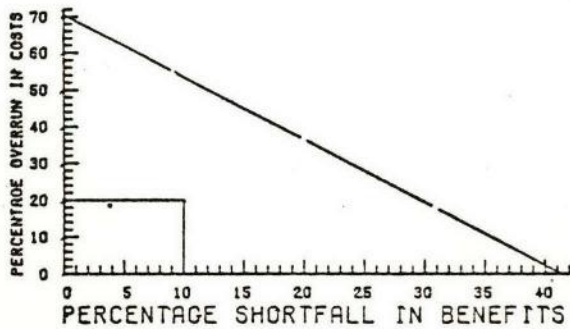
I

MAXIMUM BENEFITS

60% EXPORT QUALITY
40% DOMESTIC QUALITY
100% OF POTENTIAL REVENUES FROM
SALVAGE LOGGING AND THINNINGS

LEGEND

- * MAXIMUM EXPECTED FALL IN BENEFITS IS 30.0%
- * MAXIMUM EXPECTED RISE IN COSTS IS 20.0%
- * TARGET YIELD IS 0.0%
- * BENEFIT SWITCHING POINT IS 58.7%
- * COST SWITCHING POINT IS 130.3%



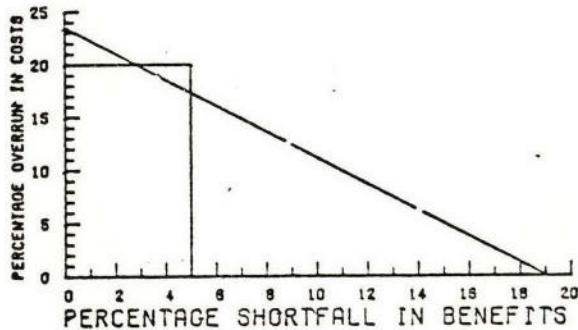
II

MEAN BENEFITS

20% EXPORT QUALITY
30% DOMESTIC QUALITY
60% OF POTENTIAL REVENUES FROM
SALVAGE LOGGING AND THINNINGS

LEGEND

- * MAXIMUM EXPECTED FALL IN BENEFITS IS 10.0%
- * MAXIMUM EXPECTED RISE IN COSTS IS 20.0%
- * TARGET YIELD IS 0.0%
- * BENEFIT SWITCHING POINT IS 41.3%
- * COST SWITCHING POINT IS 70.5%



III

MINIMUM BENEFITS

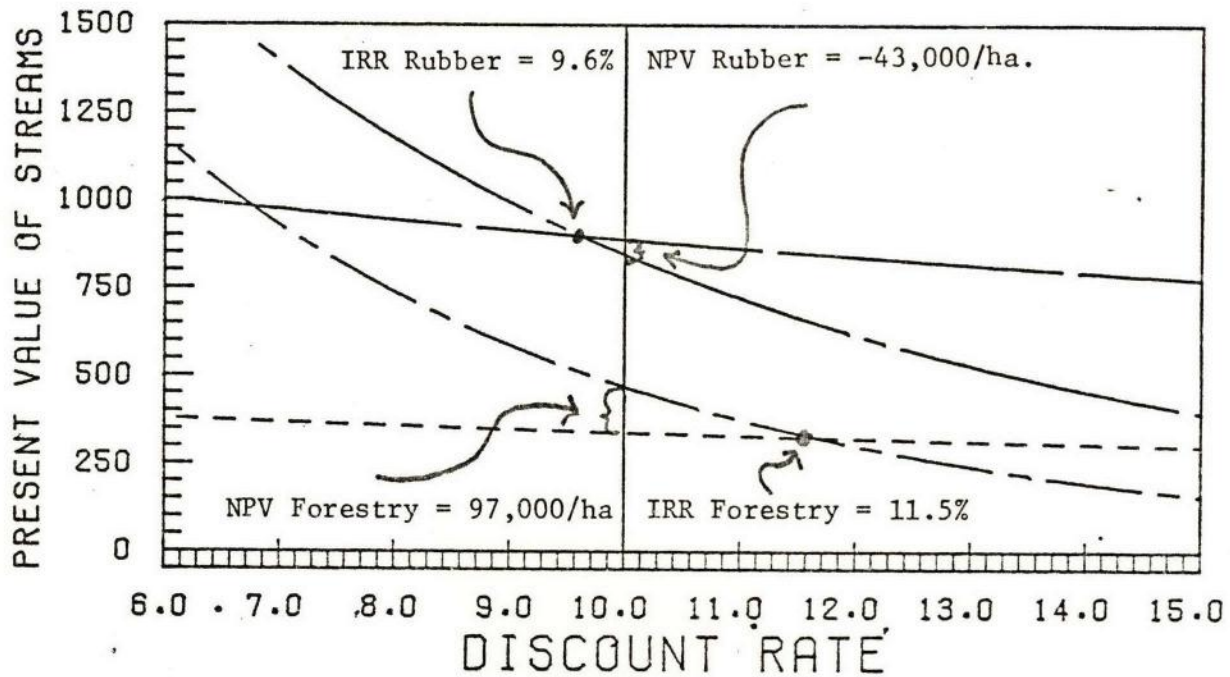
100% DOMESTIC QUALITY
NO REVENUES FROM SALVAGE
LOGGING AND THINNINGS

LEGEND

- * MAXIMUM EXPECTED FALL IN BENEFITS IS 5.0%
- * MAXIMUM EXPECTED RISE IN COSTS IS 20.0%
- * TARGET YIELD IS 0.0%
- * BENEFIT SWITCHING POINT IS 19.0%
- * COST SWITCHING POINT IS 23.5%

IVORY COAST FORESTRY PROJECT

GRAPH 4



LEGEND

- = 10.00% - OPPORTUNITY COST OF CAPITAL
- = C.NRUB79
- - - - - = B.NRUB79
- = C.NFOR
- . - . - = B.NFOR

Internal Rates of Return and Present Values at Various Discount Rates

C.NRUB79 = net costs of rubber development over 10 year investment period

B.NRUB79 = net benefits from rubber during 20 year production period

C.NFOR = net costs of forestry development over 20 year investment period

B.NFOR = net benefits from forestry over 10 year production period

s. Agriculture

EUROPEAN INVESTMENT BANK

Luxembourg, March 19, 1979

Mr Fred L. HOTES
Irrigation Adviser
WORLD BANK
1818 H Street N.W.
WASHINGTON D.C. 20433

Dear Fred,

Re : Standardized Appraisal Procedures for Irrigation Projects

1. I send you enclosed a copy of the "Guide to the Economic Evaluation of Irrigation Projects" and a set of tables for multiple use which the European Investment Bank uses extensively. I have found that by and large, and with minor ad hoc changes, the use of the standard tables proposed in this guide offers considerable advantages. They help the project preparation team in reviewing all project aspects and in calculating basic appraisal criteria. They also help Bank staff review the project preparation report because the standard presentation brings immediately into focus the main anomalies. In most cases, and eventually after correction of some of the figures, they also allow direct use of the tables, in the Bank's report.

As you will see, the report also contains useful tables for monitoring and evaluating the project during and after implementation.

Some time ago I had suggested to Mr Weiner that it might be worthwhile for the World Bank to look into this document, but I assume that you are in fact the person I should have contacted directly.

I remember that at the World Bank we used to be too involved in day-to-day operations to sit back for a while and think at procedures and longer term issues, but I hope that you will find some time to send me your views about the Guide and the appropriateness of the criteria recommended.

I hope that we will have the opportunity to meet in a not-too-far-away future and discuss our experiences : since I joined the EIB, I have been involved mainly in irrigation in the Mediterranean Basin.

Sincerely yours,



Jean-Jacques Schul

Cc. Mr M. Weiner, Director General, World Bank, Washington

OFFICE MEMORANDUM

TO: Mr. Ted J. Davis (AGR)

DATE: March 16, 1979

FROM: Guido J. Deboeck (AGR)

SUBJECT: Inclusion of Disbursement Information in the Data Bank

1. The AGR Data Bank currently contains information on (i) project costs, expected beneficiaries, production, and employment effects of projects, (ii) the performance of projects under implementation -- as recorded in the Supervision Summary form --, (iii) co-financing of Bank projects and (iv) the manpower time allocated to preappraisal, appraisal, negotiations, supervision and completion -- as recorded on the time sheets --.

2. The inclusion of disbursement information in the data bank should receive high priority in light of the significant growth of the lending program over the last couple of years, and the increasing lags in disbursement shortfalls. Evidence of the latter is illustrated by the following figures recently obtained from Controller's Department.

<u>Year of Board Approval</u>	<u>Percentage of AGR Commitments Disbursed</u>	<u>% of AGR Commitments Disbursed on Projects 4 Quarters Under Implementation</u>
FY78	0.9%	0.9%
77	7.6%	2%
76	25.1%	4%
75	38.5%	7%
74	48%	
73	79.8%	

3. As these figures indicate the percentage of commitments disbursed in the first year of project implementation (for projects four or less quarters under implementation) has dropped from 7% to less than 1% in four years. Since AGR lending operations represent more than one-third of total Bank operations, there is urgent need to analyze the sectorial, sub-sectorial, and country specific trends on disbursement shortfalls. Relating these trends to the changing composition of our projects might put some more light on to the cause of these delays. Such analyses might also contribute to a better understanding of the absorption capacity and the factors that influence it.

4. To include disbursement information in the AGR data bank would be relatively simple. Controller's Department does computerize actual disbursement information. The major obstacle, however, is that this information is currently available on tape only. It is not interactively accessible. To make disbursement information accessible from the terminal it would be necessary to construct an additional structure in the P & B data bank, and load the information from the Controller's tapes into this structure. This would require only two man-weeks from someone in P & B (Mr. Nayak has already been assigned this task).

5. For analysis of the AGR disbursement shortfalls in particular, it would not only be interesting to obtain the actual disbursement shortfalls for all projects currently under implementation, but also the original (or revised) disbursement schedules. For this purpose the AGR data bank would have to be expanded to include the original and/or revised disbursement schedules. This can easily be accomplished by xeroxing the disbursement table from some 450 appraisal reports (or their revised versions from supervision reports) and sending these to CAD's key punch services with the necessary instructions for the preparation of cards. From these cards the original disbursement schedules could be loaded in the AGR data bank. This would also involve minimal manpower input from RORSU. Since we can link AGR with P & B data banks we would then be able to do analyses of actual versus original (or revised) disbursement schedules, and produce special studies on the sectoral, subsectoral country specific disbursements; how they compare with the original or revised schedules; how they relate to the composition of the AGR projects (single vs. multi-sectoral, or by dominant cost category) etc.

6. I recommend that the inclusion of disbursement information -- both actual disbursements and original (or revised) schedules -- into the P & B and AGR data banks be given high priority.

GDeboeck:dc

cc: Messrs. Yudelman, Pickering, Christofferse, Turnham, Thoolen, Lewis

S. Aquilino



Water Management Research Project
Engineering Research Center
303/491-8216

Colorado State University
Fort Collins, Colorado
80523

March 15, 1979

Dr. Ted J. Davis
Agricultural & Rural
Development Dept.
X3294 D834
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433

Dear Mr. Davis:

Dave Freeman and I hope you have received Volume 1 of our 6 volume study, "Farm Irrigation Constraints and Farmers' Responses: Comprehensive Field Survey in Pakistan." We were only able to send the summary of findings but you can receive the other volumes if desired from the Publications Center listed in Volume 1.

We decided to write to each of you who received Volume 1 with a personal request. We would like for you to evaluate this study in terms of its relevance for the social sciences in general and sociology in particular as a contribution to the study of irrigation organization at the micro level. We need a brief letter from you to us providing your evaluation. We will use your support to help us gain departmental sanction for a major thrust in the sociology of water resources as a legitimate part of our Ph.D. developmental change focus. There are some who do not feel that the study of irrigation organization is a legitimate arena for the sociologists. Also, there is the perception of some, probably in any department, that international research and development with a policy focus is inferior to other types of sociological pursuits. We have deliberated for almost a year about the focus of our Ph.D. program and in ~~April~~ a decision will be made. Naturally Dave and I, with a few others who have invested so much in this area of research, would like to see a program in which we can make a solid contribution.

This is no doubt an unusual request, however, we trust that you understand such political issues and hope you do not mind the imposition. If you also feel that a letter would be appropriate for our new department Chairman, David Rogers, feel free to write to him directly. We are personally

APR 18 1979

committed to this area of research. We feel fortunate that research on irrigation systems is considered significant in Colorado and the Southwest which gives us the base for comparative studies as we participate in the research required for our three international projects.

Thank you for your time and interest. If Dave and I can be of any assistance to you and your programs, let us know.

Yours sincerely,

Max K. Lowdermilk

Max K. Lowdermilk

and

David M. Freeman

David M. Freeman
(signed in his absence)
Sociology Department
Clark Building
Colorado State University
Fort Collins, CO 80523

David is away on the semester at sea program.

cc. ✓ S. Agriculture



MEETING ON INFANT AND YOUNG CHILD FEEDING
REUNION SUR L'ALIMENTATION DU NOURRISSON ET DU JEUNE ENFANT



(organized by WHO and UNICEF)

(organisée par l'OMS et l'UNICEF)

Geneva, 9-12 October 1979

Genève, 9-12 octobre 1979

In reply please refer to: B13/87/3(A)-4b
The President
International Bank for Reconstruction
and Development
1818 H Street, N.W.
Washington, D.C. 20433
ETATS-UNIS D'AMERIQUE

Files

With regard to the official documentation, a joint WHO/UNICEF document is the only existing document. A copy of this will be sent, together with the original in the language requested, to the person nominated by you to

15 March 1979

Dear Sir,

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) are jointly organizing a Meeting on Infant and Young Child Feeding. This meeting is to be held at the headquarters of the World Health Organization, Geneva, from 9 to 12 October 1979. We have pleasure in inviting you to appoint a representative to attend on behalf of your organization.

A copy of the provisional agenda is enclosed. The languages of the meeting will be English, French, Russian and Spanish. Simultaneous interpretation will be provided.

The meeting is being held as part of the activities related to the development of primary health care, and also responds to concerns expressed by countries with respect to the state of infant and young child health and nutrition, especially in developing countries. It is proposed to bring together senior policy-makers from a representative group of governments, participants from the United Nations agencies, nongovernmental organizations, heads of a representative group of the infant food industry, and other interested parties.

The objectives of this meeting are twofold: to discuss and summarize the current state of knowledge concerning appropriate infant and young child nutrition, the social, health and environmental factors affecting it, contemporary trends in feeding practices and the factors contributing to them, and their implications; and to consider what activities could be undertaken by governments, United Nations agencies, nongovernmental organizations, industry and other interested parties in order to improve infant and young child feeding practices.

/...

INCOMING MAIL UNIT
1979 MAR 15 10 53 SE
RECEIVED

The meeting is intended to stimulate a discussion between appropriate national authorities and other groups of participants mentioned above on effective ways of promoting infant and young child nutrition as a major element of primary health care. The meeting will be organized into a plenary and five multidisciplinary working groups, or committees of the whole, who will address themselves to the topics of how to encourage breast feeding; how to promote and support appropriate and timely complementary feeding (weaning) practices, with the use of local food and other resources; education, training and information on infant and young child feeding; support for improved health and social status of women in relation to infant and young child health and nutrition; and rational marketing, distribution and appropriate use of infant formulae when indicated.

1.1 Summary of the meeting

With regard to the official documentation, a joint WHO/UNICEF paper will be the only working document. A copy of this will be sent, together with the annotated agenda in the language requested, to the person nominated by you to attend.

1.4

It would be appreciated if the name of your representative could be communicated to the Director-General of the World Health Organization at your earliest convenience, but not later than 15 June 1979.

1.6

Yours very truly,

1.7

H. Mahler *Henry R. Labouisse*

WORKING GROUP 1

H. Mahler, M.D. Director-General World Health Organization
Henry R. Labouisse Executive Director United Nations Children's Fund

2.1

Encouragement of working group

2.2

Adoption of report of working group

WORKING GROUP 2

3.1

Promotion and support of appropriate and timely complementary feeding practices with the use of local food resources to this end

3.2

Adoption of report of working group

WORKING GROUP 3

4.1

Strengthening of education, training and information on infant and young child feeding practices in health and other sectors and the public at large

4.2

Adoption of report of working group



MEETING ON INFANT AND YOUNG CHILD FEEDING
REUNION SUR L'ALIMENTATION DU NOURRISSON ET DU JEUNE ENFANT



(organized by WHO and UNICEF)

(organisée par l'OMS et l'UNICEF)

Geneva, 9-12 October 1979

Genève, 9-12 octobre 1979

FHE/ICF/79.1

ORIGINAL: ENGLISH

PROVISIONAL AGENDA

PLENARY MEETINGS

- 1.1 Opening of the meeting
- 1.2 Election of the Officers of the meeting
- 1.3 Adoption of the Agenda and method of work of the meeting
- 1.4 State of art re present situation of infant and young child feeding practices, based on the WHO/UNICEF background/working paper, followed by general discussions
- 1.5 Introduction of five issues for discussion by working groups (see below)
- 1.6 Discussion of reports of working groups and adoption of conclusions and recommendations of the meeting
- 1.7 Closing of the meeting

WORKING GROUP 1

- 2.1 The encouragement and support of breast feeding
- 2.2 Adoption of report of working group

WORKING GROUP 2

- 3.1 Promotion and support of appropriate and timely complementary feeding (weaning) practices with the use of local food resources to this end
- 3.2 Adoption of report of working group

WORKING GROUP 3

- 4.1 Strengthening of education, training and information on infant and young child feeding (workers in health and other sectors and the public at large; health practices)
- 4.2 Adoption of report of working group

March 14, 1979

Professor William Partridge
Society for Applied Anthropology
Sheraton Hotel
7025 Kennedy Boulevard
Philadelphia, Pennsylvania

Dear Dr. Partridge:

Thank you for inviting me to speak as a panel members at the Society for Applied Anthropology meeting in Philadelphia on the "Measurement of Cultural Impacts of Large-Scale Development Projects."

I also received your paper and Professor Carlos' paper and the full program of the panel. As I told you over the phone, the topic is of high interest to me and directly related to my work in the Bank.

Despite my initial desire to participate in the panel, however, I am afraid now that current circumstances will not permit me to do so. I am very sorry not to be able to come and join in the professional discussion. I hope, though, that some of the other participants, who have been in contact as consultant sociologists within the Bank, will be able to speak about their experiences and also the Bank's concern for the social/cultural impacts of development projects.

If other papers will be produced for this session, I would appreciate very much receiving them.

With best regards,

Sincerely yours,

Michael Cernea

cc: Professor Manuel Carlos

cc: Messrs. Christoffersen, Ted Davis, M. Ahmad

MC:dc

OFFICE MEMORANDUM

TO: Distribution List Below
FROM: F.L. Hotes (Irrigation Adviser, AGR/CPS)
SUBJECT: FAO Irrigation Canal Lining Bulletin

DATE: March 13, 1979

S-Agriville

1. Attached is a copy of subject bulletin for use by engineers in your division.
2. It is suggested that the copy be retained in a central location, where any of your interested staff may have access to it. Twenty copies are being distributed. There are 58 irrigation engineers in the Bank now, but experience indicates that, even though all are issued copies, many copies disappear from the scene and are unavailable to new staff. Hence, the suggestion for centralizing the copy.
3. Should you wish additional copies, they may be ordered through the office of Mr. Veraart.

FLHotes:rm

cc: Messrs. Naylor, Merghoub, French-Mullen, Frank (EMP); Walton (EAP); Ramassub, Greening, Haasjes, Otten (LCP); Meimaris (WAP); Pranich (2), Tibor (2) (ASP); WSmith (2), Wadsworth (AEP)

OFFICE MEMORANDUM

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

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

SUBJECT: Report on OM&R Costs for Four Irrigation Districts

DATE: March 13, 1979

S. Aguilera

1. Attached are:

- (a) Copy of my memorandum, February 6, 1979, to 24 Bank irrigation staff on subject matter;
- (b) Copy of the report by McSwain and Associates; and
- (c) Copy of memorandum from J. Dumoulin in response to 1(a).

2. I believe that this material should be made available to all interested Bank irrigation staff and, further, that it would be useful background material to many responsible for or engaged in irrigation project operations in LDCs. Para 3 of my February 6th memorandum, 1.(a), explains why this report is confined to districts in a DC. The data in the report is the only such detailed information published. It, at least, provides a starting reference point. It is my hope that our own staff and LDC Project Managers could be encouraged to develop similar data for their projects in similar formats. If this could be accomplished, the results would be much more meaningful. But without examples such as these, it is doubtful that any would respond---as evidenced by the complete lack of such data now.

3. Graham Donaldson advises that there is a procedure for clearing such a publication as a Bank Staff Working Paper, and I would like to get such a process started. A seminar may be required.

4. I propose to delete the names of the actual districts and use letter designations, as I have done in the Summary Table attached to my February 6th memorandum. The names are not essential to the results, although I do have permission to use the names and data. It also may be possible to add a table with some overall costs from US Bureau of Reclamation's OM&R costs, but in much less detail.

5. Jose Dumoulin suggests translation into Spanish. This would not be difficult and, perhaps, we should consider also translating it into French. This could be tossed out for discussion at the seminar.

6. Your advice as to the proper next step is requested.

FLHotes:rm

OFFICE MEMORANDUM

W Hotes

TO: Distribution List Below

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

SUBJECT: Report on OM&R Costs for Four Western USA Irrigation Districts

DATE: February 6, 1979

1. We have found it to be virtually impossible to find in published literature reliable cost information on well-maintained irrigation projects: data which can be used by Bank staff and by irrigation project managers in developing countries as a reference base from which to judge, in some manner, the resources needed to operate, maintain, and keep in good repair, relative modern irrigation systems. It is recognized that most projects are unique, and that cost parameters for one project may not be applicable to any other. Still, we know also that, where comparability can be identified by knowledgeable persons, selected cost parameters can be useful for many types of work and industry comparisons.

2. With these thoughts in mind, AGR/CPS last year retained the services of four California irrigation district managers and chief engineers under the leadership of Kenneth McSwain of Merced, California, to prepare a report on OM&R costs for their districts. The attached report is the result of their efforts, which is transmitted for your review and comments. We are especially interested in your views as to the value of having this report reproduced in greater quantity, with the specific identity of the districts perhaps being eliminated, for distribution to all interested irrigation staff and to selected LDC agencies and staff who might find it useful.

3. With Bank work being exclusively in LDCs, one could ask why California irrigation districts were studied at all. There were two principal reasons:

- (a) The districts are relatively well-managed, operated and maintained; and
- (b) OM&R and water distribution records are accurately recorded in considerable detail.

Identifying an LDC irrigation project which could satisfy these two important criteria appeared to be a near-impossible task. Also, the technology level of the districts studied is well within the capability of LDC projects. Furthermore, the size of delivery units, perhaps surprisingly, are not out of line with those in many LDC projects.

4. While each reader is free to analyze the data (presented in the main report in the English system of measurement units) as they think appropriate, the attached summary sheet in metric units reveals many interesting facts. Despite extremely high labor costs, costs per hectare and per m³ are quite reasonable. Other suggestions for meaningful parameters are solicited.

Attachment

FLHotes:rm

cc: Messrs. Tibor/Rodger, Finlinson, Gupta, O'Brien, Pranich, Baker, Tennent (ASP); Laeyendecker, Plusquellec, Niaz (EMP); Stevenin, Pradithavani, Kuffner (EAF); Dumoulin, Martinod, Cernejo (LCP); Smith, Norton, Whitford (AEP); Meimaris, Des Bouvrie (WAP); Collins (AGR/CPS)

Selected Operation, Maintenance and Repair Data

for Four Irrigation Districts in Western USA

1975 Data-Metric System

(1) DISTRICT	(2) ANNUAL EXPENSE ^{/1}	(3) NOMINAL GROSS AREA	(4) TOTAL CROPPED AREA	(5) TOTAL CROPPED LESS DOUBLE CROPPED	(6) GROSS WATER DIVERSIONS	(7) WATER DELIVERED TO IRRIGATORS	(8) OM&R PER HECTARE CROPPED	(9) OM&R/m ³ DIVERTED, PUMPED OR PURCHASED	(10) OM&R/m ³ DELIVERED TO ALL USERS	(11) DELIVERY EFFICIENCY 100 x (7) ÷ (6)
	US\$	ha	ha	ha	m ³ x 10 ⁶	m ³ x 10 ⁶	US\$/ha	US\$/m ³	US\$/m ³	%
A	1,133,000	28,530	27,560	26,000	394.4	328.0	41.10	0.0029	0.0035	83.2
B	2,046,000	61,760	47,440	46,130	849.1 ^{/2}	533.1	43.15	0.0024	0.0038 ^{/2}	68.0
C	979,000	29,990	27,760	24,960	286.3 ^{/3}	173.7	35.25	0.0034	0.0056 ^{/5}	60.7 ^{/6}
D	1,011,000	41,230	35,080	35,080	330.6 ^{/4}	226.9	28.80	0.0031	0.0046 ^{/5}	68.6 ^{/6}

^{/1} From Page 6 of basic report.

^{/2} Of gross diversions, 65.8 m³ x 10⁶ were delivered to users other than irrigators.

^{/3} Privately-owned pumps delivered an additional 74 m³ x 10⁶ to meet crop requirements.

^{/4} Privately-owned pumps delivered an additional 97.5 m³ x 10⁶ to meet crop requirements.

^{/5} Water purchased by C cost approximately \$400,000 and by D about \$500,000; if these figures were deducted from Annual Expense (Column 2), the \$0.0056 for OM&R/m³ would be reduced to \$0.0033 for C and \$0.0023 for D. (See Column 13, which shows larger areas per delivery in those districts; hence, more privately-owned watercourses.)

^{/6} Some losses were used for groundwater recharge.

(1) DISTRICT	(12) AVG. DEPTH OF WATER/ IRRIGATED HA	(13) AVG. AREA SERVED/DELIVERY GATE	(14) TOTAL NUMBER OF PERSONNEL	(15) AVERAGE ANNUAL PERSONNEL COST PER EMPLOYEE	(16) PERSONNEL COSTS AS % OF COSTS OF PERSONNEL + MATERIALS + EQUIPMENT	(17) GROSS HA PER EMPLOYEE	(18) NO. OF DITCH- RIDERS	(19) AVG. AREA PER DITCH- RIDER	(20) AVG. NO. DELIVERY GATES PER DITCH- RIDER
	m	ha		\$/employee	%			ha	
A	1.19	14.4	58	12,450	92.2	492	27	2,420	67
B	1.12	11.2	135	10,790	85.4	457	24	4,800	172
C	.63 (.90) ^{/7}	25.0	29	12,795	79.3	1,034	7	7,450	143
D	.65 (.93) ^{/7}	49.9	23	13,045	66.7	1,793	5	17,540	140

^{/7} Figures () include privately-pumped water.

OFFICE MEMORANDUM

W Hotes

TO: Distribution List Below

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

SUBJECT: Report on OM&R Costs for Four Western USA Irrigation Districts

DATE: February 6, 1979

1. We have found it to be virtually impossible to find in published literature reliable cost information on well-maintained irrigation projects: data which can be used by Bank staff and by irrigation project managers in developing countries as a reference base from which to judge, in some manner, the resources needed to operate, maintain, and keep in good repair, relative modern irrigation systems. It is recognized that most projects are unique, and that cost parameters for one project may not be applicable to any other. Still, we know also that, where comparability can be identified by knowledgeable persons, selected cost parameters can be useful for many types of work and industry comparisons.

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- (a) The districts are relatively well-managed, operated and maintained; and
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4. While each reader is free to analyze the data (presented in the main report in the English system of measurement units) as they think appropriate, the attached summary sheet in metric units reveals many interesting facts. Despite extremely high labor costs, costs per hectare and per m³ are quite reasonable. Other suggestions for meaningful parameters are solicited.

Attachment

FLHotes:rm

cc: Messrs. Tibor/Rodger, Finlinson, Gupta, O'Brien, Pranich, Baker, Tennent (ASP); Laeyendecker, Plusquellec, Niaz (EMP); Stevenin, Pradithavani, Kuffner (EAF); Dumoulin, Martined, Cernejo (LCP); Smith, Morton, Whitford (AEP); Meimaris, Des Bouvrie (WAP); Collins (ACR/CPS)

S. Agriculture

March 12, 1979

Dr. Robert C.T. Lee
Chairman, Joint Commission
on Rural Reconstruction
37 Nan Hai Road
Taipei 107
Republic of China

Dear Dr. Lee:

Your thoughtful letter of February 13, 1979, commenting upon Mr. Bottrall's report of his Field Study on Taiwan, is greatly appreciated. In view of the fact that several corrections are required to make the report accurately reflect your observations, it will not be distributed outside the Bank until this can be done---and only then with your concurrence.

We do not plan to send Mr. Bottrall to Taiwan again for our work. While we would not want to impose an undue burden on your staff, we would be interested in receiving copies of the pages of the Bottrall Report with your marginal comments and suggested corrections. We do not want to circulate, even within the Bank, reports with significant inaccuracies. Further, we would be interested in your advice as to what changes should be made to make the Taiwan Report suitable for outside circulation. On the other hand, we may have to keep all four of the specific project reviews as internal documents and publish only general conclusions of the overall study.

Thank you again for your cooperation.

Very truly yours,

Frederick L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department

ELHotes:rm

cc: (with copy of incoming letter)

Messrs. Yudelma/Pickering, Kulatilaka (AGR/CPS); Egbert (OED); WSmith/Giglioli (AEP);
Rodger, HChang (ASP); Plusquellec (EMP); Meimaris (WAP); Cunningham (ASP);
Kuffner-(EAP).

OFFICIAL FILE COPY

S-Agriculture

Mr. G. Donaldson, AGREP

March 12, 1979

W. Cuddihy, AGREP

Proposed Workshop on Application of Social CBA

1. Several division members have attended Mr. Ray's course on the above subject. We have found it very helpful. Mr. Ray's course covers the Philosophy and the methodology very well and I would recommend it to all in the division.
2. During a subsequent cycle of Mr. Ray's course I presented a case study applying the methodology to the San Jacinto project of Bolivia. The study was well received even though the participants were not from agricultural divisions. I think the material I have prepared with Mr. Ray illustrates how to apply the methodology to a project in an uncluttered, simple to understand manner.
3. Several division members have asked me to go through the procedure with them. Rather than a person by person approach I think a workshop, for our division members only, would be desirable. In no way is this meant to impinge upon or reflect upon Mr. Ray's excellent course but is meant to complement it according to our division's specific needs.
4. The suggested workshop would occupy 2-3 hours on one morning or afternoon. It would concentrate on the application of the methodology to the San Jacinto Irrigation Project. It would not cover the basic philosophy as it is understood that division members are well versed in the subject. Notes would be handed out to participants in advance. A division memo would be circulated prior.
5. I would suggest that morning or afternoon of Thursday, March 22 or Tuesday, March 20, as tentative dates. Mr. Ray's workshop and other developments are stirring up quite a bit of interest in SCBA at the operational level. Randy Harris's analysis for the Muda Project, Malaysia, is to go to the Board in tact. I think that sooner or later we will be involved with review of the technique and that a methodological refresher in an operational context at this stage may well be worth the cost.

WCuddihy:oh

S. Aquilino

Mr. Graham Donaldson, Chief, AGREP

March 12, 1979

G. Temple, AGREP

CBDISPLAY Training Program

1. The response from the Regions to your memorandum of January 24 announcing the release of CBDISPLAY for use in project work has been good. Over sixty project analysts and forty secretaries have expressed interest in learning to use CBDISPLAY and requests for training continue to come in.
2. During the last month I have conducted training courses for approximately ninety new users. Each course lasts for two hours and includes classroom discussion and examples of how to use CBDISPLAY commands. Formal instruction is followed by individual instruction to small groups at our DATAGRAPHIX video terminal. This approach of classroom discussion coupled with hands-on experience at the terminal has generally provided new users with enough experience so that they can then use CBDISPLAY for their own project data with little further assistance.
3. Now that the large first group of analysts has completed the CBDISPLAY training course, I plan to offer courses only twice a month. One course would be for project analysts who have never used CBDISPLAY; the other course would teach advanced applications of CBDISPLAY to experienced users. Miss Nancy Pinto would conduct courses for secretaries as interest warrants.
4. By June 1979, I expect to have completed the initially heavy training requirements that are necessary to introduce any new computer tool. At that time we might want to consider the possibility to asking CAD to take over CBDISPLAY training responsibilities.

cc: Messrs. Yudelman, AGR
Pickering, AGR

GTemple:oh

INFORMATION CENTER ROUTING SLIP		DATE: 4/23/79
NAME		ROOM NO.
(1)	Mr. M. Cernea	D709
(2)	Non-Regional IC.	F338.
<p>In accordance with <u>Administrative Manual Statement No. 5.01</u>, will you please:</p> <p><input type="checkbox"/> Initial the attached to indicate that it has been released for filing.</p> <p><input type="checkbox"/> Indicate the loan, credit, investment or project to which the attached refers.</p> <p><input type="checkbox"/> Indicate the organization, meeting, research study (RPO No.) to which the attached refers.</p> <p><input checked="" type="checkbox"/> <u>Forward the attachment referred to in the attached correspondence.</u></p> <p><input type="checkbox"/> Indicate the date of the covering letter of the attached.</p> <p><input type="checkbox"/> Prepare a summary translation of the attached.</p> <p><input type="checkbox"/> If you wish the attached "<u>confidential</u>" material placed in a Safe, please indicate:</p> <p style="padding-left: 40px;">- who is authorized to see it</p> <p style="padding-left: 40px;">- when it can be declassified</p> <p><input type="checkbox"/> Prepare a typed version of the attached and return both</p> <p><input type="checkbox"/> Other:</p> <p>COMMENTS: We do not have this report. It was sent with the original of this memo to Mr. Geif Christoffersen.</p> <p style="text-align: right;">Thank you</p>		
FROM: NRIC		ROOM NO.: F338
		EXTENSION: 72026

Mr. Leif Christoffersen, Assistant Dir. (AGR)

March 12, 1979

Michael Cernea (AGR)

Meeting on Non-Government Organizations

1. In preparing for the meeting with the German Government on the role of Non-Government Organizations within the framework of donor/recipient relationships in development aid, the attached study is of relevant interest.
2. This study was directed by the International Secretariat for Volunteer Services (ISVS). Its objective is to learn more about the roles which various domestic development services can play in their own countries' human development and what outside assistance can do to help in this effort. The study contains an assessment of past foreign assistance efforts in behalf of these domestic volunteer services in LDCs and contains some interesting suggestions and recommendations regarding future relationships that go beyond the current formal donor/recipient dichotomy.

Attachment

MCernea:dc

cc: Messrs. Ted Davis, ~~Caio Koch-Weser~~, M. Ahmad

Mr. Donald Pickering, Acting Director, AGR

March 12, 1979

Gordon Temple *gt*

Social and Economic Aspects of Tidal Swamp Land Development

1. This interesting article by William Collier describes the economic activities and social relations of people who live in the swampy areas of Indonesia. Building on his previous work on swampy and tidal areas, Collier describes some of the problems associated with transmigration projects that resettle outsiders into these areas.

2. Although the article should be sent to the Indonesian Transmigration and Land Settlement for informational purposes, it raises no issues of which Bank staff are unaware. Unfortunately, the author basis his judgment of Bank policy towards transmigration on the Asian Wall Street Journal article of 12 December 1978. However, once he has read the appraisal report for Transmigration II -- he must have access to Bank reports because some of his data are taken from Bank documents -- he will realize that Bank policy towards transmigration has changed.

3. One point made in the article deserves mentioning. Land management and resource use in tidal areas located in the Other Islands are controlled by a Marga - the clan-like social entity that functions as a supra-village. Because the costs associated with the use of common property resources -- over-fishing, for example -- are internalized within one Marga, this form of resource ownership results in optimal use of common property resources in tidal areas. The Bank must exercise care that the change from communal ownership to private ownership that is proposed for transmigration projects does not result in the over-utilization of common property resources in project areas.

cc: Messrs. Yudelman (o/r) AGR
Donaldson, AGREP

GTemple:oh

S - Agriculture

Mr. J. Goering, ~~AGREP~~

March 12, 1979

W. Cuddihy *WC*

APAS - Enhancements

1. In reply to your request for suggestions for APAS developments I have these:

- (a) In the table "Physical Inputs and Outputs by Farm Type", the word "yield" is used for production. Could "production" be used instead?
- (b) In the same table and in the table headed "Physical Inputs and Outputs, Total Project Area", an indication of cropping pattern by hectares of each crop is important. Could this be added? The printout should be self-contained. Inclusion of exogenously determined cropping patterns in the manner that prices are treated would be quite useful.
- (c) Hyung Kim has an excellent debt servicing model and others may exist. Addition of this as an option in the manner of CRDISPLAY as an APAS option would make the package quite powerful and comprehensive.
- (d) The ideal would be to enable APAS to execute the job while the user was on-line. At present the hardware constraints are exasperating.

2. I do have some general reflections which I would like to share with you in the disciplined manner that a memorandum imposes. I found the software and the technical assistance very good during my use of APAS with the Laos project. A major problem did arise with the hardware that forced me to abandon the package. While using APAS I was very much in a learning phase which necessitated many iterative runs. At the same time our physical data and pricing information was very sketchy, again requiring many iterations. As a rule of thumb the turn-around time is about one day if there are no IMF gold auctions combined with system dumping and so on. This makes the package very unforgiving when a time constraint for production of a white/yellow cover arises. Trying to figure out the delayed entry procedure also took a lot of time.

3. The net effect was that I spent far too much time on the instruments of analysis and not enough on pricing methodology and on substantive issues of project design. All this became rather clear as time ran out so I abandoned the "high-payoff, high-risk" approach of the computer package for the pedestrian certainty of the pencil. I think the reliability coefficient for the APAS package is still a bit low. Much of it, though, is operator specific and should improve with practice. Enhancement of the software should fix things there. But what about the hardware? In spite of user experience and software improvement the analyst would be well advised to

continued ...

March 12, 1979

keep at least one spare week, a sharp pencil and lots of green paper in reserve if he wants to be at least 95% sure of meeting his deadline. Some day I intend to go back to the Laos data and have another go!

cc: Graham Donaldson/

WCuddihy:oh

S. Agriulline

D. C. Pickering (Acting Director, AGR/CPS)

March 12, 1979

F.L. Hotes (AGR/CPS)

Memorandum of Messrs Sassoon and Morse, November 13, 1978, on Insurance Practices

The following comments refer to numbered paragraphs in the subject memorandum:

- 1.(a) Much better definition of "major civil works" is required. An Indian irrigation project, for example, may be for \$300 million, but the work may be divided into several hundred contracts---none larger than \$10 million.
- 1.(b) Indians refuse to hire any expatriate consultants. Is there an Indian Risk Analysis Insurance Expert available?
2. I would like to see the lists of potential advisers, at an appropriate time.
- 3.(a) I believe that the potential for conflict of interest needs firmer treatment than suggested in this paragraph. I recommend that, if a consultant is used, his letter of agreement (i.e. contract) contain a clause which indicates that any insurance company which he represents would be ineligible for the placement of any policies resulting from his consulting assignment, without the permission of the client.
- 3.(b) The refund of the consultant fee from the brokerage commission sounds very much like a reverse contingent fee, which surely would have considerable influence on the client in making a decision as to what company with which to place the insurance. This might not be the "best" for the client. The potential for "sweetheart deals" is tremendous, and I am not ready to accept that the conflict is more apparent than real. My experience with the insurance industry and brokers, for more than 30 years, makes me very cautious. It seems to me that independent consultants other than brokers surely could be obtained.

FLHotes:rm

REPORT OF THE FIFTH MEETING
OF
THE ACC TASK FORCE ON RURAL DEVELOPMENT

Rome, 5-9 March 1979

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome 1979

REPORT
of the
FIFTH MEETING OF THE ACC TASK FORCE ON RURAL DEVELOPMENT

FAO, Rome, 5-9 March, 1979

Introduction

1. The fifth meeting of the ACC Task Force on Rural Development was held in Rome from 5-9 March 1979. The list of participants and observers is given in Annex I. Mr. R.R. Moreno, Director, Human Resources, Institutions and Agrarian Reform Division, FAO presided over the Meeting. Mr. M.A. Zaman, FAO, was secretary.

2. Mr. Moreno, in his opening statement, observed, inter alia, that rural development is a long-term undertaking. Although there are always growing pains in the establishment of any body, the Task Force on Rural Development, since its inception in 1975, had achieved positive, promising results in various aspects of its activities. The setting up of a National Rural Development Task Force in Liberia, with its Vice-President as chairman; the establishment of a Ministry of Rural Development in Lesotho, and a national task force in Bolivia, were positive developments with which the Task Force has been associated through the Inter-Agency Rural Development Country-Level Exercises. There had also been progress in such related activities as the information repositories for rural development, programme harmonization, and especially in monitoring and evaluation in which a common approach within the UN system now appeared to be emerging.

3. He also observed that continuation of the work of the Task Force would be affected by the restructuring of the UN system. Apart from the need to consolidate the gains made so far and make further progress towards rural development with equity, there is an obligation towards Member Governments, particularly those of developing countries, to continue this inter-agency effort. In addition, there will doubtless be a need for some inter-agency mechanism for a coordinated follow-up of recommendations of the World Conference on Agrarian Reform and Rural Development.

4. The meeting adopted i) the provisional agenda of the meeting; and ii) its tentative programme, with the amendment that an agenda item No. 8 "Continuation of the inter-agency rural development effort" be inserted before the item "Other business".

5. The meeting noted that, as a result of the restructuring of the UN system carried out under the General Assembly Resolution 32/197, the ACC structure was being re-organized, including ad hoc subsidiary bodies such as the ACC Task Force on Rural Development. The General Assembly had further decided that ad hoc subsidiary bodies should be limited in number and should respond directly to national needs.

6. Accordingly, while the Task Force assumed that it would continue its activities in the interim, they would be reviewed by CCSQ within the context of the results of the forthcoming World Conference on Agrarian Reform and Rural Development. This review has been included on the agenda of the September 1979 session of the CCSQ (Prog.)

JOINT ACTION AT THE COUNTRY LEVEL

7. Mr. C. Beringer, Director, Field Programme Development Division, FAO, submitted to the Task Force the report of the second meeting of the ad hoc Working Group of the ACC Task Force on Rural Development, which met in Rome from 29-31 January 1979 to review the performance of joint inter-agency action in five countries, viz., Bolivia, Lesotho, Liberia, Samoa and Somalia. The meeting was attended by most of the UN agencies which have been involved in the exercises, as well as the Resident Representatives for Bolivia, Lesotho and Liberia, the Deputy Resident Representative in Somalia, and (in view of the unavoidable absence of the Resident Representative from Samoa) by an FAO expert recently returned from Samoa; the national coordinator of the rural development programme in Liberia also attended as did an observer from a major bilateral donor. Their presence greatly facilitated full discussion of progress and problems in the five countries on the basis of first-hand observations and views from the field.

8. The Task Force recognized that UNDP Resident Representatives have played a key role in the effective implementation of the coordinated UN **system** assistance to national programmes; and that much has depended on the effective leadership they have provided in the three countries in which the programme has been most active.

9. It will be recalled that the field exercises began with the fielding of exploratory missions to each country in 1977. The missions were able to examine the possibility of identifying target populations for rural development strategies, although these varied according to national conditions. The missions found that, in most cases, the question of how to achieve coordination of government programmes and international assistance at the central level had not been successfully resolved, although coordination at the local level was often more successful. A major concern of the exercise was to assure that concerted action at the national level would be matched by concerted international support. The missions found some evidence, however, that available resources may have been working against the objectives of poverty-oriented rural development in the absence of adequate coordination. It appeared that both external technical assistance and external financing often followed inconsistent approaches. Instead of promoting integrated governmental efforts, external assistance often reinforced centrifugal tendencies at the national level.

Bolivia

10. The ACC exploratory mission led to the creation of National Rural Development Task Force with staff contributions from the Ministry of Planning and the Ministry of Agriculture and Peasant Affairs. The Task Force has prepared an extensive

planning document which has been reviewed by several UN agencies. The government has decided to mount a major national integrated rural development programme designed to link conceptually and operationally all existing sectoral programmes and the international assistance being provided to them. This decision is expected to lead to the formulation of a longer-term rural development strategy in the context of national planning which will establish priorities for future investments.

11. A technical assistance project to help complete the planning phase will be approved by UNDP very soon. A UN executing agency will be selected in consultation with Government since, in the Bolivian context, execution by Government does not appear feasible. The project's basic purpose is to strengthen planning capability at the Centre and in the regions and local communities; to help develop a strategy for rural development in accordance with the policy formulated by the mission and the preparatory Task Force; and to identify specific technical assistance and capital rural development projects. The preparatory phase of this project has already involved inputs from UNDTCD, ECLA, FAO, ILO, UNESCO, UNICEF, UN Volunteers, UNIDO, the World Bank and UNDP itself. Much of this assistance was provided from the regular programmes of technical cooperation of respective agencies. In addition IFAD has indicated its intention to programme financial assistance in connection with the government effort.

12. The exercise was judged to have had a significant effect in stimulating and maintaining government interest and action in poverty-oriented rural development during a period of unusually frequent change in Government.

Lesotho

13. The problems of Lesotho centre on how best to mobilize the rural people to achieve higher productivity and incomes in the context of national priorities. The ACC exploratory mission coincided with the Government's allocation of coordination responsibility to a new Ministry of Rural Development. The government has been studying means for strengthening that ministry and, thereby, enhance coordination among government departments. The Ministry of Rural Development is being assisted by a UNDP-funded project executed by FAO to which other agencies are also expected to contribute. As a vehicle for testing new approaches to popular participation, a pilot rural development project has been initiated in a major catchment area and is being assisted through funds-in-trust made available by the Government of the Netherlands which will involve inter alia inputs by national experts as well as by United Nations volunteers. Additional UN system inputs are expected to be required as these activities develop.

Liberia

14. As a follow-up to the ACC initiative the Government has decided to review thoroughly its national policies to ensure accelerated rural development based on objectives of decentralization, popular participation, coordination

and integration. Subsequent to the exploratory mission, the Liberian Government, by Presidential Decree, formed a National Rural Development Task Force, chaired by the Vice-President of Liberia, with a full-time National Co-ordinator. The Task Force carried out an in-depth assessment of national rural development activities through workshops involving high-level government officials, United Nations agencies and bilateral donors. The resulting action programme is being implemented in three phases. The first involves restructuring government institutions for decentralization of development functions to the county level and planning for both technical and capital assistance projects for poverty-oriented rural development, with maximization of beneficiary participation. The National Coordinator has asked for another interagency meeting in Monrovia to review the planning work to date and develop further plans for the provision of assistance to government programmes for institutional change and investment in rural development. The second phase will be the formulation of the new medium-term plan for 1980-1984 and elaboration of a detailed programme for its implementation. The third phase will emphasize new activities for rural development. The International assistance is being channelled in support of the national task force under a novel UNDP-financed, UNDTCD-executed project involving a combination of national officers, internationally-financed national experts, and short-term international consultants. Support for intermediate-level planning and administration is to be provided by other African countries, an example of technical cooperation among developing countries. In addition, to assist in sectoral assessments leading to a major redefinition of policies, consultants have been provided by UNDTCD, FAO, UNIDO, UNESCO, ILO, ITU, UPU, WHO and IMCO. Moreover, a World Bank mission has assisted the government in identifying a possible capital assistance project aimed at supporting a decentralised approach to rural development.

Samoa

15. When the ACC mission made its visit in July 1977, the Government of Samoa had just begun, as part of its five-year plan, the Village Development Programme (VDP) which is designed to increase agricultural production and establish a mechanism for planning from below with the participation of the population. Under the VDP, a Village Development Section was established under the Prime Minister's Office. Following the ACC Task Force mission, the government restructured its UNDP country programme to give increasing emphasis to technical cooperation directed toward supporting the rural development effort and has continued to study possible means for more effective coordination of national programmes and of international inputs to them. In October 1978 a UNDP/UNDTCD Economic Adviser was appointed in the Prime Minister's Office and acts as the focal point for UN system to provide information about the government's effort.

Somalia

16. The Government of Somalia has been committed to a rural development policy, as is reflected in the many ongoing projects designed for rapid and equitable development. A major example has been the Mass Rural Development

Campaign in which 25,000 volunteers undertook service in rural areas. The Government wishes to give further attention to the formulation of its rural development strategy in the context of its planning process, and to the links between national and regional institutions for coordination, decentralization and participation and international assistance to them. Special recognition is given to the need to train national personnel. Specific international assistance for these purposes is expected to be defined through a national workshop on rural development which will be prepared with the assistance of the FAO.

17. General Conclusions and Recommendations

- i) The Task Force attaches first importance to activities at the country level, and considers that the experience of the five country exercises is, on the whole, positive and promising. The rate of progress has varied, since the countries, of course, started from different orders of priority, degrees of commitment to poverty-oriented production-based rural development and levels of resources endowment.
- ii) In the exercise, each country has determined approaches to rural development consistent with its own problem diagnosis, priorities and traditions. The experiences have therefore been varied. A general conclusion might be that, in defining new approaches to rural development, most governments tend to follow a logical sequence of defining the problems and the resources already available to be deployed to solve them, followed by elaboration of national rural development strategies within the context of national planning, and leading to new action programmes designed to confront the priority problems so defined. External technical cooperation and financial assistance does provide a useful support to these efforts to the extent that it can be mobilized opportunely.
- iii) The exercise has shown that UN agencies can collaborate effectively to provide concerted and coordinated support to governments' rural development programmes, and can overcome the administrative difficulties encountered. Continued effort to further improve and to expand inter-agency collaboration at the field level is justified.
- iv) The Task Force reiterated that responsibility for planning and implementing rural development programmes is the sovereign prerogative of national governments. Hence, UN system support to programmes or to their components, should, as a matter of principle, be government-executed. However, in some cases, circumstances may require that all, or part, of the UN system assistance be executed by one or other of the UN agencies concerned, with inputs coming from more than one agency; in such cases, maximum use should be made of national expertise complemented by UN-financed activities. The Task Force re-affirmed that the UNDP Resident Representative should assist the government to coordinate UN system inputs, keeping all UN agencies fully informed.

v) The Task Force concluded that, two years after the beginning of the effort, it would be worthwhile to have an evaluation of the country-level exercises by the five countries assisted by the UN system, to assess the usefulness of the approach and the extent to which the effectiveness and coherence of agency support had been enhanced. Such an evaluation should be organized in November/December 1979 and a report made to the ACC in 1980. It was suggested that the evaluation might lead to an inter-regional workshop involving the five countries, as well as the UN agencies in late 1979, given agreement by the governments and availability of funds.

vi) The Task Force reiterated its concern regarding the adequacy of resources to support country-level poverty-oriented rural development. While in some countries there has been a re-orientation of UNDP country programmes and the application of trust funds in support of rural development, and some international financial institutions are seeking to identify and formulate investment projects, the availability of financial resources, particularly for technical cooperation, remains a constraint. The Task Force has noted the limitations of absorptive capacity and capability for project identification and preparation being encountered by lending agencies, and recommends that a more aggressive approach be taken in seeking financial support for technical cooperation in support of rural development from all available sources, including bilateral donors.

vii) The Task Force recommends that coordinated inter-agency actions in the fields should continue and be judiciously widened. It is proposed that the ACC should, through appropriate inter-agency machinery:

- a) Keep under review the more important country-level activities of the agencies in poverty-oriented rural development, in order to facilitate the exchange of information and collective experience amongst the developing countries, promote coordinated inter-agency action in the field, and assess the extent to which these activities maintain a poverty-oriented focus;
- b) Monitor progress in the experimental poverty-oriented field exercises already initiated in five countries and encourage effective continued support to them;
- c) Identify a small number of other countries in which poverty-oriented rural development is a major component of the countries' development activities, which is, or could be, assisted by the UN system, and ensure timely and coordinated inputs from the UN agencies and organizations, building upon the experience gained from the current five exercises, and utilizing operational modalities most appropriate to the particular case. In identifying such countries, an attempt should be made to achieve a satisfactory geographical coverage and to encompass a wide range of indigenous institutional capacity.

HARMONIZATION OF PROGRAMME PROPOSALS

18. The Task Force at its fourth meeting in March 1978 decided, inter alia, that a "concise, concrete analytic assessment of all rural development activities" of the UN system be prepared. It, therefore, recommended that participating agencies send to the lead agency brief statements on their programme proposals for the forthcoming biennium, by September 1978. FAO, the lead agency, was asked to analyze these statements and condense them into a concise document for consideration by the Working Group on Programme Harmonization.

19. The Task Force had before it the report of the fourth meeting of the Working Group which had met in Rome from 12-14 February 1979 to consider the document prepared by the lead agency.

20. Annexed to the report was a statement of sectorally consolidated rural development objectives on a global basis for the system as a whole, together with a presentation by sector of agency activities planned for 1980-81 on an organization-by-organization basis.

21. The Task Force welcomed the Group's report, which was presented by Mr. W.D. Oyler, Senior Programme and Budget Officer, FAO. It considered the Group had made a particularly useful contribution in establishing a practical sectoral framework for classification of rural development activities in seven categories: (i) Policies and Planning; (ii) Agriculture; (iii) Industrial Development; (iv) Physical Infrastructure, Natural Resources and Environment; (v) Application of Science and Technology; (vi) Health and Social Services and (vii) Human Resources Development and Institutions.

22. In beginning its work, the Task Force recalled that one purpose of the exercise has been to allow the Working Group on Programme Harmonization an opportunity to consider ways and means for harmonizing rural development programmes proposed by the agencies for the 1980-81 biennium. All agency statements had not, however, been provided to the lead agency in time for such consideration.

23. The Task Force then discussed further measures which might facilitate harmonization of agency programmes. It decided to recommend to ACC the sectoral categorization of rural development programmes and associated statements of global objectives in Annex II, based on a revised formulation of the document prepared by the Working Group on Programme Harmonization.

24. The Task Force considered that this categorization should provide an agreed framework within which to report agency activities and resources for purposes of the cross-organizational programme analysis of rural development expected to be requested this year by the Committee for Programme and Coordination.

25. As to further steps toward programme harmonization, the Working Group in its review had found obvious areas which would give scope for inter-agency collaboration for harmonization of programmes and for arranging the necessary linkages in

implementation. It also felt that existing resources did not permit a simultaneous examination of activities in all seven categories, but that they should be dealt with in succession. The Working Group had suggested that physical infrastructure might be considered first. However, in view of the critical role of popular participation and institutional development in poverty-oriented rural development most members felt that it would be desirable for (vii) Human Resources Development and Institutions to be taken up first. Some participants, however, suggested that (i) Policies and Planning would also fulfill that criteria.

26. In discussing possible next steps the Task Force was also mindful that the shortage of trained, qualified manpower was a critical constraint in most of the developing countries. In that connection it was suggested that existing inter-agency collaboration in the field of agricultural education and training under the auspices of the FAO/ILO/UNESCO Inter-Secretariat Working Group on Agricultural Education, Science and Training (ISWG) might be expanded to include other agencies or used as a model for similar harmonization activities in other fields. The Task Force was informed that possible expansion of ISWG membership was already under consideration but the present mandate of ISWG, had been the subject of a formal agreement among the Executive Heads of the three agencies and it had been decided that the most appropriate time to consider changes in that mandate would be following the World Conference on Agrarian Reform and Rural Development.

27. The Task Force also agreed with the Working Group on Programme Harmonization that any such further steps should cover at a given time at most one sectoral category and should involve a small ad hoc group of primarily subject matter programme managers or specialists from the concerned agencies. Arrangements might have to be worked out to provide such a group with details of proposed agency activities at the programme element level.

MONITORING AND EVALUATION OF RURAL DEVELOPMENT

28. Following the original recommendations of the ACC in creating the Task Force and having been reinforced by the experience of work at the country level, the Task Force has made a special effort to evolve a common approach to monitoring and evaluation of poverty-oriented rural development.

29. The ACC Task Force on Rural Development, at its fourth meeting, held in Rome from 6-8 March 1978, recommended the establishment of a small inter-agency panel of professionals with experience in monitoring and evaluation.

30. The Panel was asked to:

- i) consider concrete proposals regarding operational definitions and a set of indicators against which rural development activities could be evaluated;

- ii) recommend how these could be incorporated in the UN agencies' reporting systems in order to reflect their activities in poverty-oriented rural development;
- iii) define more clearly the concept of target population and determine how to measure benefits accruing to such groups; and
- iv) examine ways in which UN agencies and governments could cooperate in evaluation at the country level.

31. Accordingly, an Inter-Agency Panel on Monitoring and Evaluation met in Rome from 1-3 February 1979 and prepared a report on the subject which included common definitions and a set of conclusions and recommendations. Mr. A.R. Ayazi, Chief, Evaluation Service, FAO, presented the report to the Task Force for its consideration.

32. The Task Force, having considered the report in depth, decided to adopt the conclusions and recommendations of the Panel, with minor additions and deletions, as follows:

- a) Definition of terms which included project outputs, project effects, project impact; monitoring; on-going evaluation; ex-post evaluation and appraisal (see Annex III). These definitions were generally compatible with similar definitions adopted elsewhere within the UN system, including those recently compiled by the Joint Inspection Unit.
- b) The operational definition of "target" population or groups was considered in the light of the basic premise of the ACC Task Force on Rural Development that "organizations of the United Nations System should be asked to orient or re-orient their programmes to assure that the benefits accrue primarily to the rural poor". The Panel felt that the poverty target groups for UN agencies could not be identified meaningfully by the income criterion alone. Even when raising income was the development objective, the limited nature and scope of intervention through technical assistance projects would make it very difficult to undertake evaluation of impact of such assistance on income of the beneficiary group.
- c) The Task Force recommends that rather than defining poverty exclusively on the basis of an income criterion, the target group be defined as the less-advantaged segments of the rural population, quantified to the extent possible, identified using specific criteria determined by the purpose and expected benefits of the project or programme concerned. These might include income, employment, health, education or other services. If the majority of direct benefits of a project were intended to accrue to such segments of the population in the rural areas, it would be classified as a poverty-oriented rural development project. Since the classification of rural development projects is based on the intended beneficiaries, the evaluation of projects would, in large measure, be in terms of whether the benefits actually accrued. For technical assistance projects, it was recommended

that target groups should be defined in terms of the intended beneficiaries of broader government programmes which the technical assistance was intended to support.

- d) The Panel wished to underline the correlation between the clarity of objectives in project design and effective monitoring and evaluation of results. When objectives were expressed in general terms and lent themselves to subjective assessment, measurable and objectively verifiable indicators became a key element of project design. Taken together, the statement of objectives and indicators should permit measurement and comparison between intentions and actual achievements. These indicators should be correlated with the goal variable to be measured and should be carefully chosen taking into account speed and frequency of data availability, as well as cost of data collected and analysis.
- e) The indicators selected as the base to rural development projects and programmes should clearly identify the target groups which are expected to benefit from these projects and programmes. While the indicators would be project-specific, these must reflect one or more of the following types of benefit:
- Economic Improvement (e.g. income, productivity, assets, access to productive resources, prices, employment).
 - Social Change (e.g. nutrition levels, health status, housing quality, literacy as well as access to primary health care, water supply, working conditions, education and other social services).
 - Beneficiary Participation (e.g. structures to ensure participation and involvement in decision-making, implementation and evaluation).
- f) The mechanisms of the acquisition, processing and analysis of data on specified indicators should be provided for in the design of the projects. This would facilitate rapid feedback to the management of the project or the programme during implementation, as well as information for ex-post evaluation to influence the design of future projects and programmes.
- g) A clear distinction must be drawn between indicators of "effect" and those of "impact" in relation to a specific project or programme. The UN agencies should pay immediate attention to measuring the effects of their interventions on the target groups. They should also assist the governments concerned in incorporating appropriate indicators in project design and in subsequent monitoring and evaluation of the progress of the project, using these indicators.

- h) Each agency should designate a unit which would ensure that the requirements specified above were reflected in the final design of all new projects. This unit should have the responsibility of making periodic reports to the Agency management on the degree to which these projects and programmes were being focussed on the target groups. It would also be highly desirable that each Agency be staffed to give advice, guidance and training to its own operational staff on monitoring and evaluation and projects design; assist in building national capacities to monitor and evaluate rural development programmes; and assist the management of specific projects and programmes in the collection and analysis of data on specified indicators.
- i) In the specific case of the five countries participating in the joint field-level exercise, a concerted effort should be made during 1979 to provide necessary assistance to the national authorities responsible for the rural development exercises in the design of monitoring and evaluation systems.

33. The Task Force also agreed that efforts should be made to facilitate exchange of experience among the countries participating in the joint country-level exercise. An initial effort might take place in connection with an inter-regional workshop to assist the countries in the evaluation of the country-level exercises.

34. In view of the fact that the Task Force has agreed on substantive categories for classifying rural development activities, as well as fundamental definitions for monitoring and evaluation, the Task Force suggested that these be used on a continuing basis to monitor agency work. It suggested that, when sufficient work has been done by the agencies an effort might again be made to prepare a system-wide inventory of activities to form a baseline for monitoring changes in programme orientation.

DATA REPOSITORIES FOR RURAL DEVELOPMENT

35. Ms. O. Lendvai of the Library and Documentation Systems Division, FAO, presented the working paper on this topic which it had requested from the International Development Research Centre, Canada. The paper shows that the capabilities of developing countries to collect, collate and disseminate information relevant to rural development themselves is limited and there is no single source which is capable of satisfying their 'core' information needs at present. Yet the success of rural development programmes depends to an extent on how well the existing fund of knowledge is scanned and assessed across disciplinary boundaries for any particular purpose at any given time.

36. The paper suggests that there is a prima facie case to establish the appropriate mechanisms to coordinate the retrieval of relevant literature from the complex of services both within UN and outside. It suggests establishment of a precise list of descriptors. Permanent arrangements would best be based on appropriate institutional structures in the developing countries themselves. If based on developing countries, a mini-DEVSIS operation might be ideal, relying on the latent potential of the low-income nations themselves to contribute and share the information that is required to satisfy their basic rural development needs.

37. The question about what other steps may be taken to reconcile diverse information needs and, in particular, how to strengthen the capabilities of developing countries themselves in this respect and to enable them to make fuller use of existing worldwide sources of scientific information needs to be considered. International collaboration in information services over the past decade has demonstrated the practical advantages of standardization, compatibility, common vocabularies and access to literature.

38. The Task Force noted the points made in the working paper and recommended that it be transmitted to the Inter-Agency Board for Information Systems (IOB). One way of dealing with the matter would be to set up a panel which would include both information experts from the UN system and experts from developing countries, to assess information needs in developing countries by examining present problems in rural development information flow, studying the sources of development literature and practices of literature collection, processing, storage, retrieval and dissemination. The Panel would also be expected to propose ways for improvement of the information flow by complementary actions, such as referral activities, low-cost retrieval systems, professional development, literature repackaging, and development of an appropriate thesaurus, along with subject categories and their pertinent descriptors.

RE-ORIENTATION OF PROFESSIONAL STAFF
IN RURAL DEVELOPMENT

39. Mr. R.J. Erickson introduced the topic. In the course of the discussion of Mr. Erickson's statement, the Task Force, recalling its recommendation at its Fourth Meeting that each agency should develop staff training programmes, noted with satisfaction the rural development staff training carried out in the World Bank, FAO, ILO, UNICEF, UNESCO, UNDP and WHO.

40. The Task Force recommended that:

- (a) The Task Force and its member agencies increase their efforts towards re-orientation and training of their professional staff on various aspects of poverty-oriented rural development including training on monitoring and evaluation of rural development projects;

- (b) participants in such courses should include staff members from sister agencies who might profit from experience gained in other agencies;
- (c) training participants should include both field and Headquarters staff in line with the Task Force's intention to focus on improving field level activities;
- (d) the exchange of relevant materials on rural development useful for training should be encouraged among agencies;
- (e) the Task Force and its member agencies should explore the possibilities of obtaining extra-budgetary resources for financing rural development courses for professional staff on the UN system.

REPORT TO ECOSOC

41. The Task Force adopted a draft report on rural development by ACC to ECOSOC, which was presented by Mr. R.R. Moreno, Director, ESH, FAO. It would be submitted by FAO, as lead agency, to other agencies for their further clearance.

FUTURE INTER-AGENCY EFFORTS IN RURAL DEVELOPMENT

42. The Task Force is convinced that some form of inter-agency effort in rural development, emphasising the country level aspects, as well as monitoring and evaluation and programme harmonization, will be required over the near-term. Otherwise, much of what has already been accomplished will be lost.

43. The Task Force is aware that any discussion about its future would have to take place in the context of the present efforts towards restructuring of the UN System. In addition, the conclusions of the forthcoming World Conference on Agrarian Reform and Rural Development, especially the Programme of Action, would have a very important bearing in determining the activities of the UN system in poverty-oriented rural development and the inter-agency mechanism for stimulating, coordinating and systematically implementing such activities.

44. The Task Force is also convinced that priority should be given in any inter-agency effort to activities at the country-level or in support of them.

45. The results of the inter-agency effort and, in particular, the national experiences related to it, should provide a substantive contribution to deliberations of UN inter-governmental bodies. This would involve provision to these inter-governmental bodies of information regarding the activities undertaken at country level, outstanding issues, lessons learned by the countries and the UN system and other implications for international cooperation.

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RURAL DEVELOPMENT OBJECTIVES IN THE UN AND SPECIALIZED AGENCIES

Introduction

The agencies in the UN system conduct a wide range of rural development activities which are increasingly of an inter-disciplinary and multi-sectoral content in reflection of the complex nature of the rural development process. Description and analysis of the whole of these activities is, therefore, subject to many conceptual problems, the solutions of which must be approached in a flexible and pragmatic way.

To allow a system-wide analysis, objectives and activities must be grouped within a one-dimensional categorization which is both all-inclusive and mutually exclusive, and is therefore inadequate to deal simultaneously with any other dimension of rural development. Statements of global objectives for each selected category must be framed at an appropriate level of generality which still contains sufficient specificity to meet the concern of each agency that its activities can find expression in the global presentation.

Bearing in mind all these practical difficulties, the Task Force proposes to ACC the following scheme for categorizing agency activities in rural development. While proposing a sectoral categorization, the Task Force stresses that two pervasive non-sectoral themes must be understood to underlie and should guide strategies for the conduct of activities in each category. These themes are:

- i) maximum use of the TCDC approach, and
- ii) commitment to institutional development and popular participation, especially of the relatively less-advantaged groups, within an anti-poverty approach.

1. Policies and Planning^{1/}

- To strengthen national capacities and foster sub-regional, regional and international cooperation within the framework of the NIEO in the development of comprehensive policies and strategies for accelerated rural development, amelioration of rural poverty, and improvement of the quality of rural life through improved use of natural resources and

^{1/} Includes overall multi-sectoral activities. Sectoral policies and planning work would be reported by section.

development of physical infrastructure, increased food and other production, improved manpower development and utilization, provision of more adequate social services and more equitable health and income distribution to satisfy basic needs, especially for under-served populations.

- To strengthen governmental capability for planning and implementation of coordinated programmes in agrarian reform, health, appropriate education, training, extension and employment, and environmentally-sound human settlements, together with development of institutional arrangements for maximizing the participation of rural people in the development process.

2. Agriculture

- To provide support to governments and foster sub-regional, regional and international cooperation in developing plans and institutions for more effective agricultural development.
- To stimulate increased investment in agriculture and to improve international marketing and distribution structures which will ensure equitable prices for agricultural commodities and an equitable distribution of agricultural income which provides increased benefits to rural dwellers.
- To provide support for increasing food production and food availability from crops, livestock and fisheries, through optimum application of inputs in a framework of improved environmental quality for the benefit of rural people, especially the most disadvantaged.

3. Industrial Development

- To support developing countries in promoting industrial development as an integral part of rural development, particularly with respect to agro-based and forest-based industries, and small-scale and other industries, such as drug and vaccine production.
- To promote the development of institutional infrastructure for servicing industrial enterprises, and of the knowledge and skills necessary for industrial operations.

4. Physical Infrastructure, Natural Resources and Environment

- To support governments in developing the necessary physical infrastructure for rural development, including land and water, energy, housing, transport and communications, and to encourage popular participation in this process.
- To support the appraisal of energy resources, requirements and use, and the carrying out of comprehensive schemes for the development and use of these resources, including rural electrification schemes.
- To support the planning and carrying out of programmes for the assessment, development, use and sound environmental management of land, water and other natural resources.
- To support country efforts in evolving policies, plans, programmes, financial mechanisms and institutions to accelerate the provision of adequate shelter, potable water supply, infrastructure and services, with emphasis on lower-income human settlements in rural areas.

5. Application of Science and Technology

- To support governments in strengthening national and regional capacities to take into account trends in world scientific and technological knowledge in formulating policies and building institutions for development, adaptation, selection and application of environmentally sound and appropriate technology for rural development, including manpower development.

6. Health and Social Services

- To increase the capacities of governments to develop and provide programmes, institutions and resources necessary for meeting socially-equitable health and nutrition needs of under-served populations in rural areas.
- To support the provision of needed social services, including social security and social welfare programmes.
- To promote environmentally-sound development and improvements in the environment and quality of life in the rural areas.

7. Human Resources Development and Institutions

- To enhance and facilitate widespread popular involvement in the rural development effort; to increase such participation through the provision of adequate formal and non-formal education and training systems, supporting services including nutrition and health education and information, the provision of appropriate technology and skill training for rural development and employment.

- To support the provision of the necessary institutional infrastructure for enhancing equitable popular participation in rural development, including credit and marketing facilities, cooperatives and trade unions, education, health, training and research institutions, and extension and other supporting services, and to reduce the isolation of rural people through provision of adequate communication involving full use of the mass media.

- To support the provision and strengthening of institutions concerned with the education, training and employment of personnel for the initiation, progress and management of rural development programmes.

- To promote more active participation of, and greater employment opportunities for, relatively less-advantaged groups such as women, youth and landless labourers in rural development.

DEFINITION OF KEY TERMS^{1/}

1. Project Outputs: are the outcome of project activities. Examples of outputs of a rural development project are: acreages irrigated, farmers trained, cooperatives established, credit provided, kilometers of road constructed, health facilities constructed, schools constructed, and so on.
2. Project Effects: are the outcome of increased use made of project outputs. Examples of the effects of a rural development project are: increased production, higher crop yields, increased employment, more traffic, increased use of health services, higher attendance at schools, and so on.
3. Project Impact: is the change in the standard of living and the increased capacity for self-sustained development of a group of beneficiaries or communities, resulting from project effects. These changes can be measured by increased income and consumption, improved diets, reduced incidence of diseases, increased literacy, increased local participation in planning and decision-making, and so on.
4. Monitoring: is the continuous gathering of information on project inputs and objectives, and on conditions and complementary activities that are critical to the success of the project. It utilizes benchmark information collected during the design/preparation phase, and continues throughout the project's lifetime; it includes the comparison of this information against original objectives and standards; it alerts project management and policy makers to implementation problems requiring corrective action; and it may provide the necessary information for the instigation and preparation on ongoing evaluation.
5. Ongoing Evaluation: is the continual analysis during project implementation of project outputs, effects and developmental impact. The purpose of ongoing evaluation is to provide project management and policy-makers with any analytical support that might be necessary to enable them to assess and, if required, adjust policies, objectives, institutional arrangements and resources affecting the project during implementation. Ongoing evaluation studies may also be used in the preparation of projects in other regions.
6. Ex-Post Evaluation: is an analysis, after completion of a project (or of a distinct phase of it), of its effects and impact. Among other things, it may draw on information provided by monitoring and ongoing evaluation, though supplementary special studies may sometimes be needed. The purpose of ex-post evaluation is to provide policy-makers with information and analysis for future planning and/or to inform donors and the general public on project results. The depth of the analysis and the nature of the reporting will depend on its potential end-use and benefits.
7. Appraisal: relates to the analysis of the merits of a project proposed for financing, and is quite different in meaning to the term "evaluation" or "project evaluation". Appraisal means assessment before a project is approved, while evaluation means assessment during or after implementation of the project.

1/ Excerpt from Summary Report of the Inter-Agency Technical Workshop on Monitoring and Evaluation of Rural Development Projects and Programmes, organized by the World Bank in Copenhagen, Denmark, from 6-10 December 1976.

Meeting of the
ACC Task Force on Rural Development
Rome, 5-9 March 1979
at FAO Headquarters, Philippine Room

PROVISIONAL AGENDA^{1/}

- (1) Opening statement
- (2) Review of the Inter-Agency Rural Development Exercises in Liberia, Lesotho, Somalia, Bolivia and Western Samoa
- (3) Harmonization of rural development programme proposals
- (4) Monitoring and evaluation of rural development activities
- (5) Rural development data repositories
- (6) Re-orientation of professional staff in rural development
- (7) Draft report by ACC to ECOSOC
- (8) Other business
- (9) Adoption of report

^{1/} Annotations are attached

ACC TASK FORCE ON RURAL DEVELOPMENT

Annotations on the Agenda of the Fifth Meeting of the
ACC Task Force on Rural Development, Rome 5-9 March 1979

Introduction

The Fifth Meeting of the Task Force in March 1979 follows closely the items listed in the "Record of Decisions" prepared as the summary of results of the Fourth Meeting held in March, 1978. A major focus of the Agenda for this meeting is on those items where there has been considerable activity since the previous meeting, notably, (i) joint action at the country level, (ii) harmonization of rural development programme proposals of UN agencies and (iii) their monitoring and evaluation. It also covers the other two aspects, viz., (i) rural development data repositories and (ii) re-orientation of professional staff in rural development. Provision has been made for discussion of (i) a draft report by ACC to ECOSOC and (ii) other items. In addition to these items, papers received from participating agencies would be circulated on receipt.

Agenda Item (1)
Opening Statement

Prof. Nurul Islam, Assistant Director-General, of FAO's Economic and Social Policy Department is expected to address the meeting.

Agenda Item (2)
Review of the Inter-Agency Rural Development Exercises

A meeting to review the Inter-Agency Rural Development Exercises at the Country Level will be held in Rome, 29-31 January 1979. It is expected to be attended by the participating agencies and countries.

This meeting would review the progress made and problems faced in the five countries, viz., Liberia, Bolivia, Lesotho, Somalia and Western Samoa in carrying out the Inter-Agency Rural Development Exercises. The Progress Reports show Liberia has been leading, followed by, in order of performance, Bolivia and Lesotho. No progress could be made in Somalia for reasons external to her. There was no follow-up action in Western Samoa during the year under review. The report of the meeting would be circulated in due course.

UNDP Resident Representatives continued to coordinate actions by the participating agencies and follow established procedures on reporting follow-up actions in each country.

The Task Force may wish to consider what further steps should be undertaken in the light of the experience gained so far. The latter could include consideration of the desirability of selecting some more countries for this exercise. Another Asian country, with better representative character and greater interest in rural development, might possibly be added.

Agenda Item (3)

Harmonization of Rural Development Programme Proposals

The members of the Task Force, in its last meeting, decided to submit their inputs on rural development programme harmonization to FAO by September 1978. They requested FAO to analyse the statements and prepare an analytical paper for consideration in the next meeting. Very few agencies sent substantive inputs within the deadline. Not all agencies submitted their contributions despite three reminders. However, FAO has put together the materials received so far. The consolidated paper would be discussed in a meeting to be held in Rome from 7-9 February 1979. Its report would be sent to the agencies in due course.

Agenda Item (4)

Monitoring and Evaluation of Rural Development Activities

In compliance with the wishes expressed in the last meeting, FAO, with the assistance of several consultants, prepared a draft working paper on Monitoring and Evaluation of Rural Development Activities. It will be considered by an Inter-Agency Panel in its meeting to be held from 1-3 February 1979. The report of the Panel would be sent to the agencies in due course.

Agenda Item (5)

Rural Development Data Repositories

The International Development Research Centre, Ottawa, Canada, at the request of FAO, has prepared a working paper on Rural Development Data Repositories for assisting the developing countries to set up their reference and library facilities on rural development. The paper is expected to be sent to the agencies by January 1979.

Agenda Item (6)

Re-orientation of Professional Staff in Rural Development

It was decided in the last meeting that each agency should separately develop a re-orientation programme in rural development for its professional staff. Hence, FAO has taken steps to implement, subject to the availability of funds, a project for gathering and preparing the technical content of such a course. The training is expected to begin after the course is developed. The other agencies may wish to report the action taken by them in this respect.

Agenda Item (7)
Draft Report by ACC to EGOSOC

The draft gives a brief account of the background of ACC Task Force on Rural Development and the progress made by it in various aspects of rural development since 1975. The progress made in the inter-agency country exercise on rural development in five countries is generally encouraging. A promising beginning has been made in harmonization of the rural development programme of various UN agencies despite bureaucratic inertia to coordinate. A draft of the methodology for its monitoring and evaluation has been done. A paper has been prepared spelling out the mechanism to be followed by developing countries to establish their rural development reference and library facilities. Similarly steps have been taken to develop re-orientation course in rural development for their staff. The basic issue which still remains unresolved is whether the concept of rural development is a management strategy or is an ideology which emphasizes an institutionalized assurance for equitable opportunity for all to develop their potential and contribute to and share in national development.

Agenda Item (8)
Other Business

Agenda Item (9)
Adoption of Report

FIFTH MEETING OF THE ACC TASK FORCE ON RURAL DEVELOPMENT

Rome, 5-9 March 1979

Opening Monday, 5 March at 9.30 a.m.

at FAO Headquarters, Philippine Room (C277/281) 1/

PROVISIONAL PROGRAMME

Monday, 5 March 1979

- 9.30 Opening statement by Professor Nurul Islam, Assistant Director-General, Economic and Social Policy Department,
and
Adoption of the Agenda.
- 10.00 Item No. (2) -- Report of the Inter-Agency Working Group on Inter-Agency Field Exercises at Country Level,
by Mr. C. Beringer, Director, DDF.
- 10.30 Discussion of the Report
- 13.00 LUNCH
- 15.00 Item No. (2) -- continuation.
- 17.30 Formation of the Drafting Committee.

Tuesday, 6 March 1979

- 9.00 Item No. (3) -- Report of the Inter-Agency Working Group on Rural Development Programme Harmonization by
Mr. W.D. Oyler, Senior Programme and Budget Officer, PBE.
- 9.30 Discussion of the Report.
- 13.00 LUNCH

1/ Registration of the participants attending the meeting will begin at 08.30 in the Philippine room (C277/281).

- 15.00 Item No. (4) -- Report of the Inter-Agency Working Group on Monitoring and Evaluation of Rural Development Activities, by Mr. B.S. Mahajan, Adviser, Special Development Subjects, DDD.
- 15.30 Discussion of the Report.

Wednesday, 7 March 1979

- 9.00 Item No. (5) -- Rural Development Data Repositories, by Mr. G. Dubois, Acting Director, GIL.
- 9.30 Discussion of the Report.
- 13.00 LUNCH
- 15.00 Item No. (6) -- Re-orientation of Professional Staff in Rural Development, by Mr. J.A.C. Davies, Director, AFP.
- 16.00 Item No. (7) -- Draft report by ACC to ECOSOC, by Mr. R. Moreno, Director, ESH.
- 16.30 Discussion of the Report.

Thursday, 8 March 1979

- 9.00 Item No. (7) -- continuation
- 11.30 Item No. (8) -- Other business.
- 13.00 LUNCH
- 14.30 Meeting of the Drafting Committee.

Friday, 9 March 1979

- 8.30 Meeting of the Drafting Committee to prepare the Draft Report.
- 14.30 Distribution of the Draft Report.
- 16.30 Item No. (9) -- Adoption of the Report.

Mr. Brian Gray, CPS

March 9, 1979

C. J. Redfern, WAPA2

Plantain Cultivation Manual (Colombia)

—nalt
I received the attached copy of a Colombian manual for growing banana plantain from David Brown of CDC, in connection with our proposed Second Cocoa-Coffee in Togo, where as you know, plantain is used extensively as temporary shade for cocoa. I am sending the manual to you as it may be of wider interest. If you should judge it worthwhile having translated into English we would greatly appreciate receiving several copies.

CJRedfern:vv

OFFICE MEMORANDUM

Yellow

TO: Mr. Jim Goering, AGREP

DATE: March 8, 1979

FROM: Ms. Young Kimaro, *MK* AGREP*S. Aguiuelme*SUBJECT: Suggestions on Enhancement to the APAS

I would like to suggest the following enhancements to the APAS for discussion at the March 13 meeting.

1. Input data for delayed entry

The system's capability to internally generate data for phased farmers' participation in the Project has substantially enhanced its usefulness and users appear eager to benefit from this capability. However, the input data required for this feature, as it is presently set up, is cumbersome and time consuming. To use it correctly the user needs to understand how the system interprets and aggregates the delayed entry input data. Furthermore, some desk calculator work is required before the data can be entered, not to mention the repetitious entry of the farm model name for each year delayed (see Attachment, Fig. 1A).

The input data format could perhaps be redesigned to more closely approximate project analysts' thought process, and thereby make it less demanding of users' time and effort. In Fig. 1B in the same attachment I have drawn up one such possible design. The sample data used for Fig. 1B is identical to that in Fig. 1A.

Row (1) the name of the farm model is entered once, as compared to five times in Fig. 1A;

Row (3) the total number of farms represented by the farm model;

Row (5) number of farms entering the project each project year.

2. Automatic tabulations triggered by delayed entry

When farmers' participation is phased over a number of years, the system automatically prints commodity, product-line and farm tables for every year delayed. This quickly multiplies the number of tables (and pages!) printed out by the number of years affected. The typical response I have observed from the participants at the two training workshops and other users, to pages of repetitious tables, has been that of confusion and annoyance. Although these tables may be useful in some cases when relative prices of inputs and outputs change over time, I question whether the merits of it is not outweighed by the inconvenience. It may be preferable to suppress this automatic table-triggering capability and make it available only as an optional feature.

3. Cropped area by commodity

APAS does not tabulate areas cropped under each commodity at any level in its data aggregation. However, project analysts often want to know how areas under each crop change over time, e.g., how much of the area under rainfed rice is being replaced by irrigated rice, or the incremental increase in hectareage under HYV rice in the dry season due to more reliable water supply, etc. Such information, incorporated into the input/output tables at product-line, farm, subarea and project levels could be useful.

4. Incremental tables made automatic

When REPORT command is given for with and without project situations, e.g., REPORT THAILAND/(WIF,WOF), incremental tables, wherever applicable, could perhaps be automatically printed. This would mean one less chore for the user.

5. Creation of without project (WO) files from with project (WI) files

Could there be a convenient way to copy into a WO file the first data entries of all commodities, product-line, farm and subarea data of a WI file which have base year reference years? Should this be possible, it would obviate the duplicative effort in preparing input data for the WO file when the without project situation remains static, and therefore substantially reduce time needed for input data preparation.

6. Farm budget table

The farm budget table, as it is currently set up, is difficult to comprehend and, because of prefixed inflow/outflow items, is inflexible. This appears to have been necessitated by having integrated cash flow and income analyses into one table. Because the farm budget table occupies a key position in majority of agricultural project analyses, it may be desirable to make this table easier to read and at the same time flexible to meet varying needs of the users. To this end I would like to make the following suggestions.

Tabulation: separate cash flow analysis from income analysis and treat them as two separate tables;

Input data: (a) subdivide form 4.3 (inflow budget data) into two -- production-related inflow and non-production-related inflow forms;

(b) likewise, subdivide form 4.4 (outflow budget data) into production-related outflow and non-production-related outflow forms;

- (c) each of these forms should be assigned a time series code which would in turn be associated with a particular arithmetic function;
- (d) if (a) to (c) are followed it should be possible to allow users to freely name the inflow/outflow items to suit their needs.

Attachment

cc: APAS Advisory Group: Messrs. G. Ashkenazi
V. Bhargava
E. Goetz
J. Tillier
P. Whitford
M. Wilson

Computing Activities: Messrs. D. Rix/P. Hsueh
V. Sahasrabudhe
Ms. P. Hamsher

AGREP: Messrs. G. Donaldson, Chief
L. Harbert
H. Kim
G. Temple
Ms. N. Pinto

YKimaro:mw

Fig. 1A (current input form)

TIME SERIES	CONT. CODE	NAME OF FARM	START YEAR	NUMBER OF FTS	PERIODICITY	CARD SEQUENCE #
0 1 3	0	UPLAND FARM	1978	211	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	17600, 13000				
	3					
	4					
0 1 3	0	UPLAND FARM	1980	210	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	16300, 17000				
	3					
	4					
0 1 3	0	UPLAND FARM	1981	119	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	13600, 13000				
	3					
	4					
0 1 3	0	UPLAND FARM	1982	118	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	9800, 18000				
	3					
	4					
0 1 3	0	UPLAND FARM	1983	117	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	28000				
	3					
	4					

Fig. 1B (proposed input form)

TIME SERIES	CONT. CODE	NAME OF FARM	START YEAR	NUMBER OF FTS	PERIODICITY	CARD SEQUENCE #
0 1 3	0	UPLAND FARM	1979		Y	73
DUPLICATE	1	NUMBER IN THE BASE YEAR				
	2	17600				
	3					
	4					
0 1 3	0	PHASED PARTICIPATION	1980	14	Y	73
DUPLICATE	1	TIME SERIES FOR NUMBER OF FARMS				
	2	1300, 2700, 4300, 4800				
	3					
	4					

Mr. David Rix, CADUS

March 7, 1979

Jim Goering, AGREP

Acceptance of the APAS System

1. This memorandum confirms our earlier conversation concerning the present state of development of the Agricultural Project Analysis System (APAS).

2. The acceptance testing of the first set of enhancements to the APAS System, by staff of AGREP and several agricultural divisions in the regional departments, has been completed successfully. The system has been used on a number of agriculture and rural development projects. We believe that it is now working as specified. We understand that any errors encountered in future will be rectified by CAD staff under normal system maintenance procedures.

3. We will shortly be defining a second set of enhancements to the APAS system. These have arisen from users' experiences with APAS over the last few months. We understand that a budget allocation was made by the Computing Priorities Committee for investigating APAS enhancements in FY 79. We will be discussing these with you shortly.

Cleared with and cc: Mr. Graham Donaldson, Chief, AGREP

cc: Mrs. P. Hamsher, CAD
M. Owens, CAD
Messrs. M. Yudelman, AGR
D. Pickering, AGR

JGoering:ga

Yellow
S. Aprimline

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

March 6, 1979

Mr. Gary Morishima
Skyline Inn
South Capital & Eye Streets, S.W.
Washington, D.C. 20024

Dear Mr. Morishima:

As per our telephone conversation of last week, I will arrive in Seattle on Monday March 19 (Flight UA37) and drive to Taholah for a three-and-a-half day visit to the Quinault Indian Reservation.

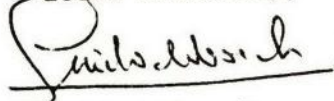
The basic purpose of my trip is to document the experience gained in establishing and implementing a management information system using mini-computer technology. I am particularly interested in the approaches you used for collecting data and how you use a mini-computer for feasibility studies, simulation of resource production models, training of managers and evaluation of policies.

I would appreciate if you could arrange appointments for me to talk to both your technical staff and the users of your information system.

As discussed, I would also appreciate if you could arrange for me to participate in a field trip on Thursday March 22.

I am looking forward to visit you in Taholah.

Yours sincerely,



Guido Deboeck
Rural Operations Review and Support Unit

OFFICE MEMORANDUM

Yellow
S. Aguilera

TO: Those Listed Below
 FROM: Jim Goering, AGREP
 SUBJECT: Enhancement of APAS

DATE: March 5, 1979

1. Pursuant to my memorandum of February 16, let us meet on Tuesday, March 13, E-855, 9:30 AM to consider possible future enhancements to APAS. The purpose of the meeting will be to determine the contents of a request to the Computer Priorities Committee for resources to undertake enhancements to APAS during FY1980. As indicated in my memorandum, a primary consideration in developing our request should be usefulness of any proposed enhancements to project staff.

2. I attach copies of the responses received on suggestions for enhancements.

AttachmentsDistributionAPAS Advisory Group

Messrs. G. Ashkenazi
 V. Bhargava
 E. Goetz
 J. Tillier
 P. Whitford
 M. Wilson

CAD

Messrs. V. Sahasrabudhe
 D. Rix/P.Hsueh
 Ms. P. Hamsher

AGREP

Ms. Y. Kimaro
 N. Pinto
 Messrs. H. Kim
 G. Temple

cc: Mr. G. Donaldson, Chief, AGREP

JGoering:mw

OFFICE MEMORANDUM

TO: J. Goering, AGREP
FROM: G. Ashkenazi, LCPA3
SUBJECT: Enhancements of APAS

DATE: February 27, 1979

1. Present APAS program could be enhanced at two levels of analysis. At the project level, in order to receive sensitivity tests, it could be worth finding ways either to incorporate in APAS the same sensitivity tests included in the CB/Display or to transfer automatically APAS economic data (yearly total project benefits and costs) to the CB/Display program. At the farm level analysis it could be useful to be able to receive the debt service and cash flow projections of every farm type. This could also be done either by incorporating an existing program in APAS or by finding a way to transfer automatically the farm type financial analysis data of APAS to the program which is already used in the Bank (for instance, in projects in Northeast Brazil).
2. A third enhancement would be to include in APAS the possibility to deal with mixed farm types, i.e., with farms with field crops and livestock. But before this is done it could be useful to find out what is the percentage of agricultural projects financed by Bank during the last five years which also had a livestock component, and the tendency of livestock specialists to use such a program.

GA/jp

Feb. 23, 1979

Jim: On the APAS enhancement, I have following suggestions:

1. Re - format of farm budget, and make it more flexible
2. Develop a debt-servise sub-routine
3. Livestock sub-routine for herd projection, and revenue and expenditure calculation
4. Project cost sub-routine which would handle price and physical contingencies
5. Modification of the system such that the cost of family labor would become automatically zero in financial analysis
6. Facility to automatically calculate sensitivity analysis, including switching values at alternative rate of OCC

Thank you,

Kim

Mr. Montague Yudelman, Director, AGR
(through Mr. Graham Donaldson, Chief, AGREP)
G. Temple, AGREP

March 5, 1979

Data Processing Charges

1. In his memorandum of January 26, 1979, Mr. J. Schaech (CAD) presents new computer charges that are intended to encourage effective use of computer resources in the Bank. However, these rates will have little impact on the use of computing resources, for they reflect only an accounting charge, not a charge against a real budget.
2. Failure to charge real prices for the use of the Bank's computer resources could have a serious impact on lending for agriculture and rural development. Under existing pricing procedures, users treat computer resources as though they were free. Zero marginal costs result in excess demand during the day, forcing allocation of computer resources on a first come, first served basis. Agricultural staff using APAS or CBDISPLAY can waste hours waiting for tasks to be completed because they have no way to indicate the urgency of their jobs. Consequently, existing pricing procedures for Bank computing resources waste the very staff time that the computer was intended to save.
3. The Bank could reduce the amount of this wasted time by introducing a peak-load pricing system based on real prices. Such a system would reward efficient users who run less urgent jobs overnight. More importantly, it would penalize users who run big jobs in the middle of a day even though the results are not needed until the following morning. With a peak-load pricing system the computer could respond to the sudden demands for computer use frequently encountered in project work.
4. Bank management is currently considering a proposal to begin charging real prices for use of Bank computing resources in FY81. In the meantime the potential savings in staff time required to prepare and appraise projects that might come through increased use in project work of Bank computer facilities will be lost.

GP Temple:oh

OFFICE MEMORANDUM

*Yellow**S. Agriculturne*

TO: Agriculture and Rural Development
Division Chiefs

DATE: March 5, 1979

FROM: Graham Donaldson, Chief, AGREP *GD*

SUBJECT: Third Training Workshop for the Agricultural Project Analysis System (APAS)

1. You will recall my memorandum to you of November 8 which described APAS briefly and invited you to nominate members of your staff to participate in the first APAS Training Workshop. I noted that subsequent workshops would be held in future months to accommodate others who wish to familiarize themselves with APAS. The second workshop was held in February and a third is planned for April. I invite you to submit additional nominees for the next workshop. I urge you to nominate only those individuals who plan to be involved in project preparation and appraisal work in the next several months. A list of participants in the first two workshops is attached.
2. The April workshop will run for a total of 12 "in-class" hours in 4 daily sessions of 3 hours each (9:30-12:30 AM) on April 9, 12, 16 and 19. As in the first workshop, some "home-work" outside of these hours will be expected. The major workshop activity will be to have participants use APAS to carry out the economic analysis of a simple project. Meetings will be held in E-855.
3. Names of nominees for the April workshop should be submitted to Mr. Goering's office (D-805; X-73495) not later than March 19.

Attachment

cc: Messrs. M. Yudelman, AGR; L. Christoffersen, AGR; D. Pickering, AGR;
M. Muller, CAD; G. West, CAD; D. Rix, CAD; P. Hsueh, CAD

Distribution: Messrs.

C. Walton, EAP	G. Tibor, ASP
M. Walden, EAP	D. Lee, ASP
S. Eccles, EAP	M. French-Mullen, EMP
R. Grimshaw, WAP	B. Merghoub, EMP
K. Berg, WAP	R. Frank, EMP
J. Tillier, WAP	P. Naylor, EMP
K.G.V. Krishna, AEP	C. Ramasubbu, LCP
W. Smith, AEP	K. Haasjes, LCP
O. Price, AEP	P. Greening, LCP
R. Wadsworth, AEP	A. Otten, LCP
K. Pranich, ASP	P. Gittinger, EDI
D. Parsons, ASP	B. Thoolen, AGR
J. Peberdy, WAP	

Participants in APAS Training Workshops

First APAS Workshop, December 11-18, 1978

Ms. J. Dell, EMP
N. Hill, AEP
Messrs. C. Barham, LCP
D. Fitchett, LCP
E. Brook, LCP
P. Ram, LCP
M. Asseo, LCP
C. Redfern, WAP
M. Wilson, ASP
F. Schorosch, ASP
E. Nagele, EMP
J. Shivakumar, EAP
J. Mullan, EAP
D. Papavassilou, AEP

Second APAS Workshop, February 5-15, 1979

Ms. D. Babelon, LCP
A. Ramachandran, EAP
P. Nicosia, ASP
G. Lituma, ASP
Y. Urakawa, WAP
Messrs. D. Myren, LCP
J. Fernandez, LCP
A. Klempin, EAP
G. Donovan, EMP
F. Wright, EMP
O. Saadat, WAP
G. Ablasser, AEP
P. Rhoë, AGR
L. Harbert, AGR

*FPS implemented with District funds in 1977
Funds catalyzed by UN funds
now done by Gov. offices*

Possible Terms of Reference

ACC Task Force Evaluation Mission

*UN Team leader fulfilled
process with candidates identified
start with elections which may be
delayed*

*not file because
majority of 1st
run dist. elec. in 1978*

get financing situation with FPS and...

1. In the last two years, the UN System has been assisting five countries (Bolivia, Lesotho, Liberia, Samoa and Somalia) in formulating and implementing national policies and programmes for poverty-oriented rural development. While the pace of progress varies from one country to another, considerable work has been done in delineating the problems at the national level, assisting the five governments in formulating rural development policies and programmes, and identifying the elements of external assistance necessary to supplement domestic resources for rural development. This mid-term evaluation is intended to review the progress made to date by the five governments and the UN agencies with a view to:

- (a) assessing the relevance, efficiency and effectiveness of the joint exercise;
- (b) identifying appropriate measures necessary to fill the gaps in the current efforts by governments and the UN agencies; and
- (c) preparing a framework for monitoring of the future work to facilitate more in-depth evaluation at a later stage.

Should evaluation compare gov activities? Will be discussed on Monday

Should be a low key exercise - no real products

2. In particular, the evaluation is expected to:

- (a) assess the progress made by the government in the analysis of the problems, the identification of the target group, the formulation of policies and action programmes, and in the mobilization of resources for implementation;

- (b) determine at the country level the nature and scope of support given by the UN System to the national efforts for rural development, including the relevance of such aid to the country's need and priorities and the efficiency with which it has been provided, with particular reference to the adequacy of existing arrangements for coordination among the UN agencies;
- (c) assess the impact of the assistance provided by the UN agencies in terms of:
 - (i) strengthening the country's institutional capability for the preparation and implementation of rural action programmes and projects, and
 - (ii) mobilizing the domestic and external resources for the execution of national programmes.
- (d) review, jointly with government officials, the major constraints and issues facing the government in undertaking an intensive programme of poverty-oriented rural development and in coordinating and channeling effectively assistance provided by the UN agencies;
- (e) on the basis of the above, identify and discuss with the government the follow-up actions required and the nature and scope of the associated assistance to be provided by the UN System (at the central government and local levels) for the next few years;
- (f) review with government the monitoring and evaluation procedures, both those in use and proposed for future, in order to help establish and strengthen proper systems for the monitoring and evaluation of rural development activities.

3. The mission should discuss its findings and recommendations with the government, including a broad understanding on what is to be expected from, and actions to be taken by, the government on one hand and the UN agencies on the other. The mission's report should be submitted to the Government, and members of the ACC Task Force on Rural Development.

4. The above terms of reference would require modifications depending on the degree of progress reached in each of the five countries.

V.S. Agriulture
cc. ERU - UNACC

Mrs. Shirley Boskey, IRD

February 28, 1979

Ted J. Davis, AGROR

Report of the ACC Rural Development Working Group on Inter-Agency Field Exercises at the Country Level - January 29-31, 1979

The second meeting of the Working Group on Inter-Agency Field Exercises at the Country Level was held in Rome from 29-31 January, 1979. Mr. Paul Goffin (Assistant Director, LCP), Mr. Gettachew Abdi (Senior Loan Officer, WAIDB) and myself attended the meeting for the Bank Group. A list of participants is attached as Exhibit 1.

The meetings and discussions proceeded as per the agenda taking up the written reports concerning each country and hearing from the Resident Representatives, their Deputies, and in one case (Liberia) the Coordinator of the National Task Force on Rural Development, Dr. Bright. A brief synopsis of the discussions will be given below. First I believe it is necessary to give a report on the overall setting of the meeting and the role played by FAO, the lead agency. FAO assumed the lead agency role after the ACC meeting in April 1977. At that time and until October last year, the lead agency activities were directed by Mr. K.P.S. Stevenson, Acting Director of Human Resources, Institutions and Agrarian Reform Division (ESH). Mr. Stevenson no longer holds this position and did not participate in the current meeting. Surprisingly, the meeting of the Working Group was chaired by Mr. Berringer, Director Field Program Development Division of FAO, Mr. R. Moreno, the new Director of ESH was designated co-chairman. The FAO staff who attended had not attended previous meetings of the Task Force; thus there was no continuity in the FAO representation from previous meetings of the Task Force. This situation put a substantial burden on representatives such as Mr. Havord, UNDP; Mr. Mathieson, UN; Mr. Santos, UNICEF; Mr. Litsion, WHO and myself, who have been attending the Task Force meetings over the last three years, to interpret the original concepts embodied in the original ACC focus on rural development and the ACC resolution which continued the Task Force and made recommendations which included, inter alia, the country level exercises.

It should be noted that the country level exercise was conceived of as an experiment to determine the degree to which UN agencies' activities could be coordinated at the country level to facilitate poverty oriented rural development programs in certain designated countries which had expressed interest in undertaking such programs. On the whole the experiment, which began in a series of inter agency missions to the various countries between May through November 1977 have had a mixed degree of success which is highly uneven among the countries. It seemed to be the feeling of the Working Group that there is reason for optimism for the experiment; that it is too early to make an overall assessment; that efforts should be continued and renewed in each of the countries; and that an evaluation be undertaken (by the lead agency, resident representatives, and/consultants) in November/December 1979 for the purpose of reporting to the ACC Task Force on Rural Development at its March meeting in 1980.

A drafting committee was appointed which could not have a final report ready at the end of the meeting and therefore the Working Group determined that its report would be completed by FAO and dispatched to the participants for their comments within ten days. Such report has not yet been received by the Bank.

A brief synopsis of the situation in each of the five countries is as follows:

1) LIBERIA: This discussion was unique in that it featured both the Resident Representative, Mr. Gordon and the National Coordinator of the Liberia Task Force on Rural Development, Dr. Bright. The latter is a strong willed person who voiced some strong criticisms concerning the failure of UN agencies to respond to his requests as quickly as desired. He was somewhat critical of the World Bank in moving towards project identification before institutional planning and machinery have been set up in Liberia. This criticism seemed relatively minor, particularly in light of the substantial assistance that has been forthcoming from the agencies and the support given to the World Bank to proceed with project identification, parallel with institutional planning and assistance. The consensus of the meeting was that the ACC exercise had achieved more progress in Liberia than in the other four countries. These achievements were attributed mainly to the Government's willingness to make a political commitment in support of the exercise which was evidenced by: the setting up of a National Task Force for Rural Development, the appointment of a national coordinator and the Liberian Vice President as its Chairman, the Government's declaration of its willingness to decentralize responsibilities to the counties, and the priority assigned to rural development in the national planning process. Substantial impetus was given to the exercise by the holding of a national meeting participated in by all government ministries and representatives of eleven UN agencies, in Monrovia in April 1978. The agencies, thereafter, responded with consultancies in some sixteen areas to assist the national task force in its planning activities. A suggestion was made by both Dr. Bright and Mr. Gordon that another such meeting be held later in the Spring to assess progress and improve the coordinated activities to Liberia. Copies of the reports on Liberia are available in my office.

2) BOLIVIA: The ACC exercise in Bolivia was described by the UN Resident Representative as the most important project in the pipeline for future cooperation. The members of the original inter-agency mission which visited La Paz in May 1977 were all present at the meeting, including Mr. Coffin, Assistant Director for LCP. Mrs. Anstee, the mission leader, had returned to Bolivia in 1978 in a follow up mission. The Government of Bolivia issued a decree setting up a joint working group to elaborate a national program for rural development. A comprehensive document was prepared by the joint Bolivian working group which has been reviewed in a number of participating agencies including the World Bank and a second draft has also been circulated for comments. Unlike the other countries, the Bolivian exercise now envisions a UNDP technical assistance project (to be executed by a selected agency) for overall planning assistance. The draft Terms of Reference for the project were discussed at the meeting as well as other follow up action. Regarding the Terms of Reference, there was a consensus that

from a practical point of view and considering that a two-year horizon is now contemplated for the first project, the list of objectives should be narrowed down and those retained should be precised - in fact:

- 1) more emphasis should be placed on identification of specific projects and a plan for financing the projects;
- 2) more emphasis should be placed on assessing the administrative and technical strengths of Government Agencies dealing with rural development implementation;
- 3) there should be a better balance between production, productivity increases and social aspects because the actual terms of reference are strongly oriented towards the social aspects;
- 4) clarification should be obtained from the Government on which Ministry will have the responsibility for the coordination of the rural development effort and to whom the project director of the proposed project should be responsible;
- 5) the proposed number of experts should be reduced from 8 to 4, at most 5.

Regarding the follow-up action, the UN Resident Representative in Bolivia, Mr. Henry Meyer, would convey the views discussed in Rome to the Bolivian Government and ask them to indicate which agency should be in charge of the execution of the proposed project. It was also discussed that it would be preferable to have one agency designated with full responsibility for the execution of the project and have the coordination done through a steering committee (which would include Government as well as the different UN agency representatives) which would meet once or twice a year in Bolivia to review the progress of the project. The World Bank has indicated (letter of January 25, 1979 to Mr. Valdez, UNDP, NY) its interest in accepting the role of Executing Agency if so requested by the Government.

3) SOMALIA: Mr. S. Zacharia, UNDP Deputy Resident Representative lead the discussion in which he reported specifically on the Government's commitment to poverty oriented rural development and in general to several rural development projects and programs. The Government has not, however, established a focal point or institutional mechanism to facilitate national planning for rural development nor to enlist the support of coordinated UN agency involvement. The original exploratory mission had recommended a national work shop on rural development as well as requesting the designation of a central government agency or individual who could coordinate programs. Delays in implementing these recommendations were attributed to the general political instability resulting from the serious military difficulties on the Somalian borders. Mr. Zacharia felt that the recommendations of the ACC mission were still valid and that Government should be encouraged to go ahead with its plans to hold a work shop on rural development. He did not report optimistically on institutional changes, however, he recommended that a rural development advisor be provided to the planning committee and that since UNDP funds were fully committed at this stage, every effort should be made to explore other sources of financing. In addition, funds are needed for the

establishment of a multidisciplinary rural development training center as recommended by the ACC mission. It was suggested by the working panel that the planning work shop on rural development should be organized by FAO which should focus on the institutional needs as well as specific training assistance and project identification.

4) LESOTHO: Mr. D. McAdams, UNDP Resident Representative lead the discussion and reported that the two principle recommendations of the exploratory mission were: (1) approval of an overall rural development strategy by the Government, and (2) support of the institutional arrangements proposed by the Government to carry out these strategies including strengthening the capability and authority of the Ministry of Rural Development. Government has approved a preparatory assistance project to be funded through UNDP and executed by FAO to focus on a particularly poor area of the country -- Thebana Morena --. It was agreed that efforts be made to amend this preparatory assistance project to include funding for a national directory. It was suggested that Lesotho presented a unique case in that virtually all of the rural population should be considered the poverty target group but that because of large numbers of males working in South Africa, a very high percentage of households are headed by women. No recommendations were made other than to proceed as rapidly as possible with the technical assistance project as amended.

5) WESTERN SAMOA: Mr. W. Schreckenber, Previous Expert of FAO (on behalf of the UN Resident Representative) lead the discussion in which he reiterated Government's commitment toward poverty oriented rural development very much in line with the approach recommended by the ACC, however, no follow up has been taken on the part of Government for institutional arrangements to target such rural development efforts. Rather, its efforts seem to be geared to the entire rural population and to maximize agricultural production. The working group felt that the involvement of the ACC Task Force may make a difference in Government's approach, particularly relating to beneficiary participation in the planning process at the village level. An office of UNDP is to be established in Apia soon and could be used for channeling coordinated assistance in this area.

CONCLUSION

The following general conclusions and recommendations were adopted in substance by the Working Group and are expected to be embodied in the final report to the ACC Task Force:

A) It should be recognized from the above country statements and country specific conclusions and recommendations that the government responses to the "country level exercises" have been highly positive albeit very diverse in those responses. The countries, of course, started from different levels of stated priorities and commitments and from different levels of resource endowment. In no case does it appear that the level of response has been the result of a lack of commitment to the basic principles to poverty-oriented rural development.

B) Therefore it should be considered that the country level exercise has shown sufficient progress and promise of additional progress and that the ACC Task Force should continue its efforts on behalf of these countries along the lines specifically recommended above.

C) The Working Group expressed concern about availability of resources from the Agencies' regular budgets or budgets from "trust fund" resources. The ACC Task Force should reconsider the question of recounting of existing resources and consider the possible association of bilateral agencies in the provision of additional resources.

D) The exercise was found to be a mutually reinforcing effort which showed that UN Agencies' concerted action is possible and desirable and bodes well for future ACC joint action at the country level.

E) The Working Group reaffirms the principle that governments have the full responsibility for rural development activities, and that the Resident Representative assists the government to coordinate UN system inputs. Thus, when feasible, government execution of individual projects is desirable but circumstances may require execution of specific rural development projects by a UN executing agency with appropriate inputs from other agencies. The government or UN executing agency should, of course, keep the Resident Representative fully informed so that he can discharge his responsibilities to keep all concerned agencies informed and to help coordinate all UN system inputs.

F) It is noted that the time lapse from the original exploratory missions is from about 18 months to a little over one year and that it is therefore too early to give an overall evaluation of the country level exercise on the five countries undertaking this ACC coordinated approach, nor is it appropriate at this time to make recommendations concerning a time frame for continued coordinated effort to these countries or to the expansion of the exercise to other countries. Therefore, the ACC Task Force on Rural Development should seek an evaluation (of the progress) of the country level exercise from the standpoint of ACC intervention and that of government response. These evaluations should be undertaken in November/December of 1979 to correspond to a full two year effort and a report and recommendations should be made available to the Lead Agency in adequate time so that these can be made available for consideration by the Task Force in March 1980.

G) The Working Group feels that the Task Force may consider possible future meetings of the Working Group in one or more of the countries to review progress at the country level and thus reinforce the actions undertaken by governments in support of national programs in rural development.

Attachment

Cleared with and cc: Messrs. P. Coffin, Assistant Director, LCP;
G. Abdi, Senior Loan Officer, WAIDB

cc: Messrs. W. Clark, VPE; S. van der Meer, LCP; W. Thalwitz, WAP; H. Adler, EAP;
S. Please, AEA; M. Yudelman, AGR; L. Christoffersen, AGR; F. van Gigh, WAP;
J. Hendry, EAP; J. Blaxal, AEP; A. Clift, WAL; RMEA, RMWA

ACC TASK FORCE ON RURAL DEVELOPMENT
FIELD EXERCISE

LIST OF PARTICIPANTS

29 - 31 January 1979

FAO, Rome, Italy

UNDP, New York

- Mr. Gordon Havord
Acting Director
Programme Development, Support and Evaluation Division
Bureau for Programme Policy and Evaluation

World Bank

- Mr. Ted Davis
Chief, Rural Operations Review and Support Unit
- Mr. Paul Goffin
Assistant Director, Projects Department
Latin America and Caribbean Regional Office
- Mr. Getachew Abdi
Loan Officer, Country Programmes Department
Western Africa Regional Office

ILO

- Mr. Peter W. Dunkel
Senior Officer
Rural Employment Policies Branch
Employment and Development Department
- Mr. David T. Luscombe
Consultant

World Food Council

- Mr. P.I. Markov
Senior Economist

UN, New York

- Miss Margaret Joan Anstee
Assistant Secretary-General
Department of Technical Cooperation for Development
- Mr. Kai W. Hylfelt
Officer-In-Charge
West Africa Sector
Africa Branch
TCD
- Mr. John R. Mathiason
Department of International Economic and Social Affairs

IFAD

- Mr. Abbas Kesseba
Project Controller, Project Management Department

UNICEF

- Mr. Nailton Santos
Chief, Programme Analysis and Evaluation Section

WHO

- Dr. S. Litsios
Programme Area Leader
Primary Health Care and Rural Development
Division of Strengthening of Health Services

UNIDO

- Mr. Christian Zimmermann
Industrial Development Officer

Liberia

- Mr. John G. Gordon
UNDP Resident Representative
- Mr. Y. Habtu
FAO Representative
- Mr. Cyril Bright
Coordinator, National Rural Development Task Force

Lesotho

- Mr. David McAdams
UNDP Resident Representative

Somalia

- Mr. S. Zacharia
UNDP Deputy Resident Representative

Bolivia

- Mr. H. Meyer
UNDP Resident Representative

Western Samoa

- Mr. Werner Schreckenber
previously FAO expert (on behalf of UNDP RR)

Observers

- Mr. Ray Garufi
USAID Director in Liberia
- Mr. I. Rosenthal
Regional Development Officer
US Embassy, Rome

FAO, Rome

- Mr. C. Beringer (Chairman)
Director
Field Programme Development Division (DDF)
- Mr. R. Moreno (Co-Chairman)
Director
Human Resources, Institutions and Agrarian Reform Division (ESH)
- Mrs. A. Aydin
Deputy Director, DDF
- Mr. C. Bonte-Friedheim
Deputy Director
Agricultural Operations Division (AGO)
- Mr. A. Zaman
Senior Officer (Integrated Rural Development), ESH
- Mr. A.R. Bitar
Senior Officer (Government Programmes), DDF
- Mr. J.E.M. Arnold
Senior Forestry Officer (Planning)
Forestry Department (FO)
- Mr. L.I.J. Silva
Assistant to the ADG
Fisheries Department (FI)

S - Agriculture

Mr. Anandarup Ray, Economic Advisor, PAS

February 28, 1979

Ted J. Davis, AGROR

Research Included in Agriculture & Rural Development Loans and Credits

Mr. Graham Donaldson asked me to respond to your memorandum of February 26. I attach a print-out from our AGR Data Bank listing all projects in FY76-78 which include cost components for, (1) agricultural research, and (2) other studies. The other studies category includes feasibility studies, project preparation, and other studies relating to the project being implemented. Any further refinement in the components would require going back to the original appraisal reports.

Attachment

cc: Messrs. L. Christoffersen, AGR; D. Pickering, AGR; G. Donaldson, AGR;
J. Fransen, AGR

TJDavis/cc

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 76

REGION			TOTAL PROJECT COSTS US \$ MIL	BANK AND IDA US \$ MIL	AGRICULTURE RESEARCH US \$ MIL	OTHER STUDIES US \$ MIL
COUNTRY	PROJECT	NAME				
EAST AFRICA						
BURUNDI	2BUIAF01	FISHERIES DEVELOPMENT	8.6	6.0	.0	.9
	2BUIAP02	COFFEE II	7.5	5.2	.8	.0
ETHIOPIA	2ETHAL03	RANGELANDS DEVT. PROJ.	42.9	27.0	.0	.7
MALAWI	2MALAI03	KARONGA II	12.1	9.2	.4	.0
SOMALIA	2SOMAD01	NORTHWEST AGRICULTURE	13.9	10.0	.1	.0
TANZANIA	2TANAN01	DAIRY DEV.I	15.3	10.0	.0	.7
	2TANAP09	MAIZE DEVELOPMENT	38.1	18.0	.0	.7
WEST AFRICA						
CHAD	3CHDAI02	LAKE CHAD FOLDERS IRRIG.	13.0	5.0	.9	.0
GAMBIA	3GAMAD02	RURAL DEVT.	11.7	4.1	.0	.4
GHANA	3GHAAD02	RURAL DEVELOPMENT I	54.6	21.0	.3	.5
NIGER	3NIGAD01	RURAL DEVT.I(MARADI)	13.2	10.7	.2	.8
TOGO	3TOGAI01	MARITIME R.D.	15.7	9.5	.0	.3
UPPER VOLTA	3UPVAC02	RURAL DEVELOPMENT FUND 2	16.2	9.4	.0	1.5
EMENA						
AFGHANISTAN	5AFGAL02	LIVESTOCK II-RURAL DEVT.	18.0	15.0	.3	.0
EGYPT, ARAB REPUBLIC OF	5EGTAC01	AGR.CR.FRUIT&VEGETABLE	108.1	50.0	.3	.0
GREECE	5GREAI03	EAST VERMION IRRIG.	89.8	40.0	.4	2.6
MOROCCO	5MYCAI07	DOUKKALA IRRIG	94.4	30.0	.6	.7
TURKEY	5TURAL03	LIVESTOCK III	34.7	21.5	.0	.2
YEMEN ARAB REPUBLIC	5YARAC02	GRAIN STORAGE & PROCESS.	21.8	5.2	.0	.2
YEMEN, PEOPLES DEMOCRATIC REP	5YDRAD01	WADI-HADRAMAUT AGR PROJ	7.7	7.0	.1	.6
LAC						
BRAZIL	6BRAAD07	R.D.I-RIO GRANDE NORTE I	30.0	12.0	.0	.3
	6BRAAR01	AGRIC. RESEARCH I	189.4	40.0	121.3	.0
ECUADOR	6ECUAD03	RURAL DEVT.PREPARATION	5.6	4.0	.0	3.7
HONDURAS	6HDSAL03	AGRICULTURAL CREDIT	20.0	14.0	1.5	.6
MEXICO	6MXCAL05	AGRIC/LIVESTOCK CREDIT	413.3	125.0	.0	2.0
EAST ASIA						
FIJI	7FIJAD01	SUGAR DEVELOPMENT	26.0	12.0	.0	.1
INDONESIA	7INSAI08	IRRIGATION VII	60.0	33.0	.0	7.7
	7INSAR02	NATIOLNAL FOODCROPS EXT.	44.2	22.0	.7	.0
KOREA, REPUBLIC OF	7KORAD04	RURAL INFRASTRUCTURE	143.5	60.0	.0	1.3
MALAYSIA	7MAYAD08	NORTH KELANTAN RURAL DEV	48.0	21.0	.0	.2
PHILIPPINES	7PHLAI03	MAGAT MULTJPURP.X STAGEI	84.0	42.0	.0	5.4
	7PHLAI07	CHICO IRRIGATION	84.0	50.0	.0	1.7
	7PHLAL02	SECOND LIVESTOCK	41.3	20.5	1.2	.0
	7PHLAN03	SECOND GRAIN PROCESSING	28.5	11.5	.0	.3
THAILAND	7THLAD01	N E RURAL DEVELOPMENT	45.0	21.0	4.3	.7
	7THLAI07	IRR.VI-PHITSANULOK	210.0	95.0	.0	4.8
	7THLAL01	LIVESTOCK DEVELOPMENT	11.5	5.0	.3	.0
	7THLAP01	RUBBER REPLANTING I	148.0	50.0	3.0	.0

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 76

REGION -----			TOTAL PROJECT COSTS US \$ MIL	BANK AND IDA US \$ MIL	AGRICULTURE RESEARCH US \$ MIL	OTHER STUDIES US \$ MIL
COUNTRY -----	PROJECT -----	NAME -----				
SOUTH ASIA						
BANGLADESH	8BANAI08	KARNAFULI IRRIGATION	30.3	22.0	.7	.0
BURMA	8BUAAD01	LOWER BURMA PADDY DEVT I	54.0	30.0	.0	2.3
	8BUAAL01	LIVESTOCK I	12.8	7.5	.5	.0
INDIA	8INDAD05	CAD ANDHRA PRADESH	297.0	145.0	.0	.1
	8INDAN09	COTTON DEVELOPMENT	36.0	18.0	5.3	.0
	8INDAR03	NATIONAL SEEDS I	52.7	25.0	1.2	.0
	8INDAT04	FORESTRY TECH ASSISTANCE	8.2	4.0	.2	5.7
NEPAL	8NEPAD01	RURAL DEVT. I	10.9	8.0	.1	.0
PAKISTAN	8PAKAI27	KHAIRPUR-II	29.1	14.0	.0	1.0
	8PAKAN03	SEEDS	56.5	23.0	.4	2.0
SRI LANKA	8SRIAA01	AGRICULTURAL DEVT. PROJ.	60.5	25.0	6.4	1.2

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 77

REGION			TOTAL PROJECT COSTS US \$ MIL	BANK AND IDA US \$ MIL	AGRICULTURE RESEARCH US \$ MIL	OTHER STUDIES US \$ MIL
COUNTRY	PROJECT	NAME				
EAST AFRICA						
KENYA	2KENAD05	INTEGRATED AGRIC DEVT	35.7	20.0	.0	.3
	2KENAD09	SOUTH NYANZA SUGAR PROJ.	105.3	25.0	1.3	.0
	2KENAI01	BURA IRRIG. SETTLEMENT	98.4	40.0	.1	.5
RWANDA	2RWAAD05	RURAL DEV.(RUGESERA)	23.3	14.0	.0	1.2
SUDAN	2SUDAD05	SAVANNAH DEVELOPMENT	38.2	17.0	.1	.7
SWAZILAND	2SWAAD01	AGRIC. I (R/D LIVESTOCK)	17.1	4.0	.0	.8
TANZANIA	2TANAD04	TABORA RURAL DEV.(R/DII)	23.5	7.2	.0	3.1
	2TANAF01	FISHERIES I	12.4	9.0	.0	.5
	2TANAN02	TOBACCO PROCESSING	11.3	8.0	.0	.1
	2TANAT01	FORESTRY I	8.1	7.0	.0	.2
ZAIRE	2ZAIAD02	COTTON REHABILITATION	14.6	8.0	1.6	.2
	2ZAIAL02	LIVESTOCK II	16.1	8.0	.0	.4
ZAMBIA	2ZAMAT02	INDUSTRIAL FORESTRY II	34.5	16.8	.0	.4
WEST AFRICA						
CAMEROON	3CAMAD03	RD PLAINES DES MBOS I	2.6	2.0	.7	1.3
	3CAMAD06	RURAL DVT FUND	10.6	7.0	.0	.0
LIBERIA	3LIBAD03	BONG COUNTY AGRIC DEVT	20.3	7.0	.7	.5
MALI	3MLIAD03	SUR-AGRIC COTTON I	44.6	15.5	1.9	1.2
NIGERIA	3NIRAD07	AG.DEVT.AYANGBA	114.0	35.0	.9	.0
	3NIRAD16	AGRIC.DEVT.LAFIA	85.0	27.0	.6	.0
UPPER VOLTA	3UPVAD03	WEST VOLTA COTTON II	18.9	3.6	.0	.7
EMENA						
AFGHANISTAN	5AFGAD03	AGRICULTURAL BANK III	31.5	12.0	.0	.3
EGYPT, ARAB REPUBLIC OF	5EGTAI04	NILE DELTA DRAINAGE II	207.0	66.0	.0	.9
GREECE	5GREAD01	EVROS REGIONAL DEVT.	81.1	35.0	.1	.1
MOROCCO	5MYCAD03	AGRICULTURE CREDIT III	315.3	35.0	.4	.0
SYRIA	5SYRAL01	LIVESTOCK I	34.5	17.5	.0	.2
TUNISIA	5TUNAI03	IRRIG.DEVT.I(SIDI-SALEM)	385.8	42.0	.0	.5
YEMEN ARAB REPUBLIC	5YARAL01	LIVESTOCK CR. & PROCESS.	32.1	5.0	.0	.6
YUGOSLAVIA	5YUGAN02	MONTENEGRO AGR/AGROIND 2	55.6	26.0	.4	.0
	5YUGAN04	MACEDONIA AGR/AGROIND II	56.0	24.0	.0	.1
LAC						
BRAZIL	6BRAAD15	MINAS GERAIS DEVT.I	139.0	42.0	1.2	.0
COSTA RICA	6COSAC04	AG. CREDIT & RURAL DEVT.	37.6	18.0	.0	.4
ECUADOR	6ECUAC01	AGRICULTURE CREDIT I	36.0	15.5	.5	.2
MEXICO	6MXCAD03	RURAL DEVELOPMENT III	255.0	120.0	.0	3.6
PERU	6PERAI03	IRRIGATION REHAB. I	40.9	25.0	.0	1.0
EAST ASIA						
INDONESIA	7INSAD01	TRANSMIGRATION I	56.8	30.0	.0	4.2
	7INSAI09	IRRIGATION VIII	118.0	63.0	.0	6.2
	7INSAI13	IRRIGATION IX	64.0	35.0	.0	6.3
KOREA, REPUBLIC OF	7KORAI04	AGRIC. WATERSHED DEV. I	75.0	29.0	.0	1.7

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 77

REGION ----- COUNTRY -----	PROJECT -----	NAME -----	TOTAL PROJECT COSTS US \$ MIL -----	BANK AND IDA US \$ MIL -----	AGRICULTURE RESEARCH US \$ MIL -----	OTHER STUDIES US \$ MIL -----
EAST ASIA						
MALAYSIA	7MAYAI07	NATIONAL SMALL-SCALE IRR	89.0	39.0	.0	.8
PAPUA NEW GUINEA	7PAPAD04	AGRICULTURAL DEVT. IV	18.5	12.0	.0	.1
PHILIPPINES	7PHLAC04	AGRIC. CREDIT IV	91.3	36.5	.0	.1
	7PHLAD01	RURAL DEVELOPMENT II	32.6	15.0	.4	.0
	7PHLAI04	IRRIGATION V (NISIP I)	107.2	50.0	.0	1.5
THAILAND	7THLAI10	2ND CHAO PHYA IRRIG IMPR	112.0	55.0	.0	3.6
SOUTH ASIA						
BANGLADESH	8BANAI19	SHALLOW TUBEWELLS	25.4	16.0	.0	.2
	8BANAR10	EXTENSION AND RESEARCH	16.3	10.0	1.5	.7
INDIA	8INDAD22	ASSAM AGRIC DEVT	16.4	8.0	2.9	.0
	8INDAF05	GUJARAT FISHERIES	38.0	18.0	.0	2.6
	8INDAP04	KERALA AGRICULTURE DEVT	69.0	30.0	1.3	.0
	8INDAR04	W.BENGAL EXT. & RES.	28.1	12.0	7.9	.0
	8INDAR06	EXT & RES-MADHYA PRADESH	20.9	10.0	4.4	.0
	8INDAR11	ORISSA AGRIC INTEN.	40.0	20.0	4.9	7.0
NEPAL	8NEPAI02	BHAIRAWA-LUMBINI GROUNDW	13.7	9.0	.0	.4
PAKISTAN	8PAKAA09	FLOOD DAMAGE RESTORATION	98.0	40.0	.0	.1
	8PAKAL01	LIVESTOCK I	19.7	10.0	.5	1.1

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 78

REGION			TOTAL PROJECT COSTS US \$ MIL	BANK AND IDA US \$ MIL	AGRICULTURE RESEARCH US, \$ MIL	OTHER STUDIES US \$ MIL
COUNTRY	PROJECT	NAME				
EAST AFRICA						
BOTSWANA	2BOTAL02	LIVESTOCK II	13.4	6.5	.0	.7
LESOTHO	2LESAD02	RURAL DEVT. II	26.4	6.0	.0	1.2
MALAWI	2MALAD10	SHIRE CONSOLIDATION	12.6	10.7	.8	.6
SUDAN	2SUDAD03	MECHANIZED FARMING-III	26.4	16.0	1.1	.3
	2SUDAL01	LIVESTOCK MARKETING	51.3	25.0	.0	.1
	2SUDAR01	AGRIC.RESEARCH	45.4	15.0	26.3	.2
TANZANIA	2TANAD02	RURAL DEVT III	30.5	12.0	1.4	1.3
	2TANAP07	CASHEW NUTS II	36.3	27.5	1.0	.1
	2ZAIAD03	OIL PALM DEVELOPMENT I	47.4	9.0	1.0	1.5
ZAIRE						
WEST AFRICA						
CAMEROON	3CAMAD04	CAMDEV II	39.3	15.0	.0	3.5
	3CAMAD05	ZAPI EAST RURAL DEVT	12.2	8.5	.7	.5
	3CAMAD07	RURAL DEVT WEST HIGHLAND	25.0	13.0	.3	.3
	3CAMAI02	SEMRY RICE II	55.5	29.0	.0	.9
CHAD	3CHDAI06	SAHELIAN ZONE PROJECT	4.0	1.9	.1	.0
LIBERIA	3LIBAP02	RUBBER DEVELOPMENT	29.6	13.0	.0	.2
MALI	3MLIAP01	MOPTI RICE II	31.2	15.0	.4	1.2
NIGER	3NIGAT02	FORESTRY TECH. ASSIST.	5.3	4.5	.1	3.0
NIGERIA	3NIRAP08	OIL PALM IV	83.0	30.0	.0	1.2
SENEGAL	3SENAI05	IRRIGATION III	35.0	20.0	.7	4.4
TOGO	3TOGAD03	RURAL DEVT COTTON AREAS	26.0	14.0	.9	.0
EMENA						
AFGHANISTAN	5AFGAI02	KHANABAD IRRIGATION II	28.7	22.0	.0	1.0
CYPRUS	5CYPAD01	INTEGRATED RURAL DEVT	21.0	10.0	.1	.0
EGYPT, ARAB REPUBLIC OF	5EGTAC02	SOHAG/MINUFIYA AGR.DEVT.I	45.7	32.0	.5	1.1
GREECE	5GREAC02	VEG. PRODUCTION/MARKETING	84.0	30.0	1.2	.0
MOROCCO	5MYCAD06	KARIA-TISSA RAINFED AGR.	161.5	65.0	.9	2.1
PORTUGAL	5PORAC01	AGRIC. CREDIT I	256.5	70.0	.0	1.1
TURKEY	5TURAL04	LIVESTOCK IV	83.2	24.0	.0	.5
	5TURAT01	FOREST DEVELOPMENT	915.0	86.0	11.1	.0
YEMEN ARAB REPUBLIC	5YARAI03	AGRIC. TIHAMA II	39.5	10.5	7.4	.5
YEMEN, PEOPLES DEMOCRATIC REP	5YDRAD03	WADI TUBAN AGRIC	12.3	5.2	.0	.8
LAC						
ARGENTINA	6ARGAN05	GRAIN STORAGE	280.0	105.0	.0	3.3
BRAZIL	6BRAAD08	RURAL DEVT - PARAIBA	67.3	24.0	.9	.0
	6BRAAD10	RURAL DEVT-CEARA	55.8	17.0	.2	2.2
	6BRAAD11	INTEGRATED R/D IV-BAHIA	106.6	37.0	1.7	5.4
	6BRAAR03	AGRICULTURAL EXTENSION I	284.9	100.0	.0	2.7
GUYANA	6GUYAD02	BLACK BUSH IRRIGATION	42.8	10.0	.1	.8
HONDURAS	6HDSAD01	RURAL DEVELOPMENT	14.6	10.5	.1	.8
MEXICO	6MXCAR01	TROPICAL AGRIC DEVT	149.0	56.0	33.8	.0
EAST ASIA						
INDONESIA	7INSAI10	IRRIGATION X	216.0	140.0	.0	9.2

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
WITH RESEARCH COMPONENTS
APPROVED IN FISCAL YEAR 78

REGION -----			TOTAL PROJECT COSTS US \$ MIL	BANK AND IDA US \$ MIL	AGRICULTURE RESEARCH US \$ MIL	OTHER STUDIES US \$ MIL
COUNTRY -----	PROJECT	NAME				
EAST ASIA						
INDONESIA	7INSAI14	IRRIGATION XI	47.4	31.0	.0	9.2
KOREA, REPUBLIC OF	7KORAD03	OBSEO AREA DEVT. PROJECT	76.0	33.0	.0	.3
LAO, P.D.R.	7LAOAC01	AGR REHAB & DEVT	11.9	8.2	.8	.0
MALAYSIA	7MAYAD12	LAND SETTLEMENT FELDA VI	92.3	28.0	.0	.0
PHILIPPINES	7PHLAD09	RURAL INFRASTRUCTURE I	59.0	28.0	.0	.8
	7PHLAI09	IRRIGATION VII-NISIP II	140.0	65.0	.0	4.0
	7PHLAP01	SMALLHOLDER TREEFARMING	16.0	8.0	.4	.8
SOUTH ASIA						
BANGLADESH						
	8BANAN02	FOODGRAIN STORAGE II	40.0	25.0	.0	.4
	8BANAR11	AGRICULTURAL RESEARCH	7.4	6.0	5.6	.0
BURMA	8BUAAR01	SEED DEVELOPMENT	11.1	5.5	1.6	.0
INDIA						
	8INDAC23	NATIONAL DAIRY PROJECT	363.8	150.0	.0	3.2
	8INDAD08	CAD MAHARASHTRA	140.0	70.0	.0	.2
	8INDAF06	MARINE FISHERIES II A.P.	36.5	17.5	.0	1.3
	8INDAI26	KARNATAKA IRRIGATION	284.4	126.0	.9	.2
	8INDAI40	GUJARAT IRRIGATION PROJ.	170.5	85.0	.0	.8
	8INDAN18	JAMMU KASHMIR HORTICULTURE	27.6	14.0	.0	.3
	8INDAR02	EXT & RESEARCH-RAJASTHAN	26.6	13.0	3.9	.0
	8INDAR05	NATIONAL SEEDS II	34.9	16.0	.3	.0
	8INDAR09	EXT & RESEARCH-BIHAR	16.0	8.0	1.4	.0
NEPAL	8NEPAI03	SUNSARI MORANG IRRIG (I)	37.5	30.0	.0	1.4
PAKISTAN						
	8PAKAD02	HILL FARMING TECH DEVT.	4.5	3.0	.0	.4
	8PAKAR02	PUNJAB EXT & AGRIC DEVT.	20.8	12.5	.8	.0
	8PAKAT02	HAZARA FORESTRY PREINVES	2.6	1.7	.0	1.1
SRI LANKA						
	8SRIAP01	TREE CROPS DIVERSIFICA.I	6.5	4.5	.0	.0
	8SRIAP03	TREE CROPS REHAB I (TEA)	30.8	21.0	.0	.1

S. Agriculture

February 28, 1979

Dr. D. Wind
Director
International Course on
Agricultural Credit and
Cooperative Banking
Centrale Rabobank
P.O. Box 8098
3503 SE Utrecht
The Netherlands

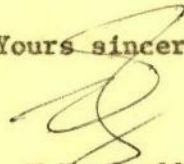
Dear Dr. Wind:

Thank you for your letter of February 16, 1979
informing us that your bank intends to sponsor an international course
on agricultural credit and cooperative banking.

Since participation in the course is strictly limited
and since it is aimed primarily at senior staff from banking institutions
in developing countries, we do not propose to nominate any of our staff
members for this course.

We wish you every success.

Yours sincerely,



W.H. Spall
Agricultural Credit Adviser
Agriculture and Rural Development
Department

cc: Mr. Pickering

WHSball:sj

Mr. Don Pickering, AGR

February 27, 1979

Jim Goering, AGREP

Bank Seminar by Noel Vietmeyer

1. Noel Vietmeyer is agreeable to leading the Seminar on Thursday, March 22, and has suggested the title and subject matter indicated in the attached draft note. He is not available for lunch on March 22. With your approval, I will arrange to have the note included in the Weekly Bulletin issues of March 5, 12 and 19.
2. Vietmeyer tells me he was given an honorarium after his previous seminar in the Bank, but would not insist on this for the proposed seminar. Apparently, funds for this purpose are available. Should I explore this matter?

Attachment

JGoering:ga

DRAFT
TJGoering:ga
February 26, 1979

Note for the Bank's Weekly Bulletin

(Editions of March 5, 12 and 19)

Dr. Noel Vietmeyer, Professional Associate of the U.S. National Academy of Sciences, will present an illustrated lecture, "Prospecting for Green Gold: Some Promising New Crops for the 1980s", on Thursday, March 22, 2:30 - 4:00 PM, Room E-855. Dr. Vietmeyer will discuss in particular the potential and some of the development work underway on the winged bean, jojoba, guayule and leucaena. Copies of background material on these crops, prepared by the National Academy, can be obtained by calling Ext. 7-3495. (Sponsored by AGR.)

Mr. Hendrik Groen (PER) (through Ted J. Davis)

February 27, 1979

Michael Cernea (AGR)

Reclassification of Sociologists/Consultants

1. While analyzing the use of consultant sociologists and anthropologists by the Bank in 1977 and 1978, we found a number of cases in which past records of Personnel Department or recent recruitment forms incorrectly identified these consultants. Although most of them are well-known sociologists and anthropologists by training and by their current job, they are identified in the recruitment forms as "economists," "town planners," "marketing specialists" (or should we suspect that maybe it was this misidentification which helped them sneak into our "economic fortress" and become Bank consultants?).

2. If the classification of these consultants would not be changed in the new computerized listing, they will never be retrieved in the future when their true skills as sociologists might be again needed. I suggest that the Personnel Department reclassify them with the code 09000000. In certain cases, a double coding would be probably warranted (for instance, for some consultants who are both sociologists and economists).

3. The attached list complements the list in my memorandum to you of February 12, 1979.

Attachment

MCernea/dc

1. Neville Dyson-Hudson - called a "Management Specialist"
2. Lisa R. Peattie - mislabeled as "Town Planner"
3. Gunnar Haaland - Called an "Education Specialist"
4. William S. Johnson - called an "Economist"
5. Marlaine Lockheel - called a "Management Specialist"
6. Sergio Maltes - mislabeled as "Economist"
7. David McCleeland - misnamed as "Tourism Specialist"
8. Philip McKean - improperly called a "Tourism Specialist"

10. Raymond Noronha - improperly labeled a "Marketing" and Management Specialist"
11. Alison Scott - mislabeled as "Management Specialist"
12. Mr. Sewell - improperly called a "Geologist"
13. Frederick Temple - also not a "Management Specialist"
14. Nicholas Wincott - mislabeled as "Economist"
15. Remi Clignet - misnamed as "Town Planner"
16. Jean Gallais - misnamed as "Economist"
17. Jurg Mahner - also miscalled as "Economist"
18. Jean Poirier - inappropriately identified as "Demographer"
19. Dominique Gentil - called "Economist," "Agriculturalist," etc.
20. Jasper Ingersoll - This anthropologist is variously listed as a "Population Specialist," a "Social Planner," a "Technical Educator," a "Technical Education Specialist," a "Demographer," a "Technical Specialist," and even an "Archaeologist"



S. Rural Dev.

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100 - ROME

Cables: FOODAGRI ROME

Telex: 610181 FOODAGRI

Telephone: 5797

Ref. FODU - FO 4/207

FEB. 22 1979

Dear Syd,

Very many thanks for your letter of 18 January and for all the attachments. These contained a lot of useful information which was new to us.

I have read Mr. Hughart's draft with much interest, in particular his attempt to quantify the situation on a country by country basis. I think that if this could be achieved it would be well worthwhile. Evidently lack of information as to how great the shortages are and where they are is one of the first constraints we encounter in trying to do something about rural energy supply problems. However, as you will see from my attached note, I have regretfully concluded that the information used is so inadequate that the results are not very useful, and could even be misleading.

This having been said, I do believe that it would be possible to assemble enough information to carry out a meaningful exercise, along the lines suggested in my note. I am therefore showing the draft also to a few of the others here who are working with this problem to also get their reactions. Meanwhile, I hope Mr. Hughart will not find my comments discouraging. I look forward to meeting him next time I am in Washington.

I have passed on your request for the portfolio of small-scale wood-based industries material. This should now be on its way to you.

With best regards,

Yours sincerely,

J.E.M. Arnold
Chief, Planning and Investment Studies Unit
Forestry Department

Mr. Sydney Draper
Rural Development Division
World Bank
1818 H Street, N.W.
Washington D.C. 20433
U.S.A.

RECEIVED



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

Telephone: 5737

Telex: 810181 FOODAGR

Capex: FOODAGR ROME

Via delle Terme di Caracalla, 00100 - ROME

Ref: FODU - FO 4/501

FEB 2 1978

Dear Syd,

Very many thanks for your letter of 18 January and for all the attach-
ments. These contained a lot of useful information which was new to us.

I have read Mr. Hughtart's draft with much interest, in particular his
attempt to quantify the situation on a country by country basis. I think
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Yours sincerely,

J.E.M.

J.E.M. Arnold
Chief, Planning and Investment Studies Unit
Forestry Department

RECEIVED
1978 MAR -2 PM 4: 08
Mr. Sydney Dreyfus
Rural Development Division
World Bank
1818 H Street, N.W.
Washington D.C. 20036
U.S.A.

Comments on the Draft of "Prospects for Non-commercial and Non-conventional Energy Sources"

I have read this with great interest. The conclusions with respect to wood fuels are very similar to those that we have arrived at. Most of the comments I have to make are consequently of a minor nature (and are listed at the end of this note).

The one point of substance that I would like to develop concerns the effort to quantify the magnitude of the problems and to identify those countries in which they are most acute. I believe that such an exercise is needed, and I admire the author for having made the attempt with such limited information. However, I have to say that I have major reservations about the validity of the outcome of the exercise as it stands now. In fact, I fear that its findings may be misleading for several countries.

The overriding problem in such an exercise is, of course, that of being able to relate the availability of wood resources to needs for wood fuel at the household level. As is recognized throughout the draft, fuelwood is not accessible to the poor unless it is available locally. Thus, as is stated in the annex, the huge forest resources of the Peruvian Amazon can do nothing to solve the firewood shortage in the sierra or coastal areas of that country. Similarly, we have recently completed a study for Indonesia which shows that even if kerosene and other alternative fuels were considerably more costly than they are now, the wood waste from logging and processing in the outer islands still could not provide a competitive source of fuel in Java.

In fact, the geographical barriers between the wood supplies and the people need to be much less than those existing in Peru or Indonesia to make the wood inaccessible. Almost by definition, the continued existence of forests implies few or no people in the vicinity. The study from India cited on page 39 shows how short the distance between the two can be before forests are out of reach.

In short the presence of forests is not an indicator of availability of fuelwood. Equally the absence of forests does not necessarily mean shortage of fuelwood. In both Java and the plains of Bangladesh, two of the most densely populated and intensively cultivated areas anywhere, fuelwood appears to have been available on a sustained basis until quite recently as a byproduct of the tree crops grown in the gardens around the houses.

A second major problem I have with the method concerns the concept and estimates of sustainable forest yield. Output cannot be sustained from forests until the latter are brought under management, which few forests in developing countries are. Also there is widespread evidence that even then we do not know yet how to manage many tropical forest systems on a sustained basis. Furthermore, it is quite clear that the eventual managed forest estate in those countries will be much smaller than it is at present, and probably of quite different composition. The estimates of quantities developed are therefore probably not useful indicators of what could be available. However, this issue is secondary to the one of the accessibility of the wood as fuelwood.

Turning to the consumption side of the balance, I agree entirely with the comments on the serious weaknesses of the available information. Data on recorded production usually captures only a fraction of total production and use. Whenever information has come to light which gives a better indication of what total production might be, we have incorporated it into the FAO Yearbook series (provided the country concerned agreed, which it usually, but not always, did). Most of such information comes from consumption surveys, but these also are subject to wide margins of error. In addition to those difficulties pinpointed in the draft on page 37, most surveys have assessed use at a single point in time, so getting no measure of the seasonal variations in consumption, which are often significant, and many of the surveys cover only a particular area within a country and cannot safely be extrapolated to give national totals because of wide variations in use from location to location. The best that can be said is that the information now available about the magnitude of use is usually no more than a 'guestimate' for most countries, but it is usually a reasonably educated 'guestimate'.

As improved information is incorporated the series for previous years is revised, but we are usually unable to remove the fluctuations in the latter due to changes in the coverage of the basic data or a change in the manner or efficiency with which the reporting unit is capturing information. We have to say, therefore, that the fuelwood series appearing in the Yearbook for most countries are not consistent enough to support the trend analysis undertaken in this paper. Indeed, we would suspect that the information on change over time that they imply is considerably less reliable than the information on recent levels of consumption. (Nor would we feel that these data for Bangladesh and Burma are sufficiently strong to support the analysis that appears on pages 15-19 of Annex I.)

I have dealt with this at some length because, as I mentioned above, it appears likely that these various weaknesses could give results that are so inaccurate as to lead to the wrong conclusions. For example, the indications that per capita consumption is rising in Bangladesh and Indonesia are contrary to the evidence of all recent observers that the main traditional sources of supply of trees in the homestead gardens are becoming seriously depleted. Similarly recent field work does not support the estimate (in Table 4) that per capita consumption of wood fuels in Tanzania is more than two and a half times as high as in Kenya.

The comparison of use with sustainable yield in Table 4 implies that this sheds some light on whether or not the countries are suffering from woodfuel problems. This has to be challenged. Kenya, which appears as the worst off, is not suffering widespread shortages. Nor is Nigeria. On the other hand Burma, Brazil and Indonesia, all of which appear well off, are suffering shortages. Similarly the acute shortage problem of India is not apparent from the table.

I believe that in order to map the situation with enough accuracy, what is needed is an approach which goes one step further and allows the situation within each country to be stratified to pinpoint more closely deficits or potential deficits, by drawing in a flexible way on the best available information

from each country, and on the judgement of qualified observers, to try and establish what the actual sources of supply are, their present status and the dynamics of the situation. We have recently completed a somewhat similar exercise of looking at the present and potential supplies of industrial wood in each country within the tropics. This took into account expected reductions in the area of forest, the quantities that are likely to be available for cutting in practice, and the likely scale of new planting or replanting. This exercise was carried out through an extensive literature review, the use of questionnaires and of a small group of experts in each of the three tropical regions who met from time to time to review the information. It also involved the full-time services of one of our senior forest resource experts for six months. We believe that the information is available to do something similar for fuelwood with about the same level of inputs.

Other comments

P.6: Presumably this breaks population down by the main fuel they use? In most areas people use wood fuel, residues and dung, or at least wood fuel and residues.

P.13: The Mathur study cited does not state that fuelwood use virtually stops as the distance from the forest rises but the use of fuelwood gathered from the forest stops.

P.44: An additional factor affecting biogas potential is whether the animals are owned/managed in sufficiently large groups to provide sufficient raw material for a biogas unit of viable size; this has been a major constraint in India.

P.48/49: Another constraint on the applicability of the mud stove is its large size and weight, which makes it unsuitable for many types of housing. Probably more attention should be paid to simple, compact metal and ceramic stoves.

P.51: Retorts are still used to produce charcoal on an industrial scale in a number of locations around the world. (A general point about charcoal that does not seem to be mentioned anywhere is that, because it has twice the heat value per unit that wood has, and is more energy efficient in use, it can be produced economically further from the market than fuelwood, so spreading the impact of wood fuel supply over wider areas.)

P.73 of annex II: Another neglected aspect is that of improved insulation to reduce fuel use for space heating.

Non-Regional Files

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

February 16, 1979

S - Agriculture

Dr. R. N. Wood
Director
ODI
10-11 Percy Street
London W1P 0JB
England

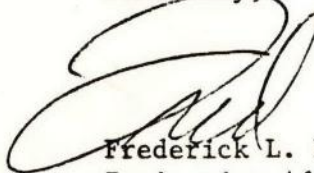
Dear Robert:

Many thanks for your letters of January 22 and February 8 regarding progress on the M&O of irrigation projects study.

We have no objections to receiving copies of the rough drafts in advance of ODI multidisciplinary review, but believe that it would be best to reserve our formal comments on the initial drafts until another draft reflecting all ODI inputs is received.

With very best wishes, I am

Sincerely,



Frederick L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department

FLHotes:rm

cc: Messrs. Yudelman/Pickering, Donaldson
(AGR/CPS); Secretary of Research
Committee (Suman Bery).

Mr. Paulos Abraham (AGR)

February 15, 1979

Ted J. Davis (AGR)

Information requested for Task Force on Multi-Sectoral Rural Development Projects

1. As requested in your memorandum of January 26, attached is some further information on the non-agriculture components in Bank supported rural development projects.

2. Table 1 shows that distribution of project components, in rural development projects approved from FY74-78 is as follows:

<u># Components</u>	<u># RD Projects</u>	<u>%</u>
1-2 components	41	19.9
3-5	82	39.8
6-8	56	27.2
9-11	24	11.7
12-14	2	1.0
15	1	0.5

3. Table 2 shows a distribution of projects based on the proportion of non-agriculture costs in total base costs. Summary results are as follows:

<u>Non-Agric. Costs as % of Base Costs</u>	<u># RD Projects</u>	<u>%</u>
0-4%	80	38.8
5-9%	22	10.7
10-14%	20	9.7
15-19%	22	10.7
20-24%	20	9.7
25 or more %	42	20.4

In consequence, there are 42 multisectoral rural development projects if their definition is 25% of the base costs in non-agriculture components. This number would increase to 62 or 30% of the rural development projects approved in FY74-78, if the cut-off point would be lowered to 20%; 84 MSRD's if the cut-off point would be 15%, etc.

4. If one would further restrict the definition of MSRD's by requiring that they should include at least two non-agriculture components then there would be only 35 MSRD's with the 25% cut-off line; 40 MSRD's with 20%; or 56 MSRD's if 15% is used.

5. A listing of projects with 10-14%, 15-19%, 20-24% and 25% or more of the proposed investments for non-agriculture components is also attached. The Bank and IDA lending amounts permit you to compute what the adoption of various definitions for MSRD's would mean in lending terms.

6. You also requested information on Bank/IDA lending share of total base costs for non-agriculture components (points c and d of your memorandum). Bank/IDA lending represents on the average about 40% of the total project costs; however, it is impractical and impossible to even attempt to distribute this among project components. Bank or IDA lending can be broken down among disbursement categories (e.g. personnel, civil works, machinery,... etc.), but this would require a substantial additional information retrieval effort, which cannot be undertaken at this time.

Attachments

GD/dc

cc: Messrs. Christoffersen, Rickerling, Turnham, Thoolen, Donaldson,
Kulatilaka

cc: RORSU Staff

DISTRIBUTION OF PROJECT COMPONENTS
OF RURAL DEVELOPMENT PROJECTS
APPROVED FROM FY74 TO 78

REGION	0		3		6		9		12		15	
	PROJECT COUNT	%	PROJECT COUNT	%	PROJECT COUNT	%	PROJECT COUNT	%	PROJECT COUNT	%	PROJECT COUNT	%
EAST AFRICA	4	1.9	13	6.3	11	5.3	5	2.4	0	.	0	.
EAST ASIA	12	5.8	12	5.8	8	3.9	1	.5	0	.	0	.
EMENA	3	1.5	13	6.3	5	2.4	5	2.4	0	.	0	.
LAC	2	1.0	8	3.9	8	3.9	4	1.9	2	1.0	1	.5
SOUTH ASIA	15	7.3	23	11.2	5	2.4	2	1.0	0	.	0	.
WEST AFRICA	5	2.4	13	6.3	19	9.2	7	3.4	0	.	0	.
TOTAL	41	19.9	82	39.8	56	27.2	24	11.7	2	1.0	1	.5

DISTRIBUTION OF PROJECT COSTS FOR NON-AGRICULTURE SECTOR COMPONENTS
IN RURAL DEVELOPMENT PROJECTS
APPROVED FROM FY74 TO 78

REGION	NON-AGRICULTURE COSTS AS % OF BASE COSTS						TOTAL
	.0	5.0	10.0	15.0	20.0	25.0	
EAST AFRICA	12	0	3	6	3	9	33
EAST ASIA	8	5	2	2	4	12	33
EMENA	9	4	1	3	4	5	26
LAC	5	3	1	2	4	10	25
SOUTH ASIA	32	5	4	2	0	2	45
WEST AFRICA	14	5	9	7	5	4	44
TOTAL	80	22	20	22	20	42	206

TABLE 3

INASEC	REGION	COUNTRY	PROJECT NAME	BANK AND IDA LENDING \$ MIL
	10.0	EAST AFRICA	ETHIOPIA	2ETHAD05 UOLAMO AGRIC.DEVT.II 12.0
			SUDAN	2SUDAD05 SAVANNAH DEVELOPMENT 17.0
			TANZANIA	2TANAP05 CASHEW NUTS 21.0
		EAST ASIA	7MAY106 MU SELANGOR RURAL DEVT 26.0	
			7PHLA103 MAGAT MULTJPURP.X STAGEI 42.0	
		PHILIPPINES	5CYPAD01 INTEGRATED RURAL DEVT 10.0	
		ENENA	4GUYA102 AGR.TAPAKUMA RENAB. 12.9	
		CYPRUS	8BANAD02 RURAL DEVT. I 16.0	
		LAC	8INDA123 PERIYAR VAIGAI IRRIGAT 23.0	
		SOUTH ASIA	8NEPA102 BHAIRAWA-LUMBINI GROUNDW 9.0	
			8SRIAP01 TREE CROPS DIVERSIFICA.I 4.3	
		WEST AFRICA	3CANAD04 CANDEV II 15.0	
			3CANAP03 COCOA I 6.3	
			3IVCAP14 COCOA II 20.0	
		IVORY COAST	3LIBAD03 BONG COUNTY AGRIC DEVT 7.0	
		LIBERIA	3NIRAD01 AGRICULTURE DEVT GUSAU 19.0	
		NIGERIA	3NIRAD04 AGR.DEVT-FUNTUA 29.0	
			3NIRAD07 AG.DEVT.AYANGBA 35.0	
			3NIRAI01 AGRICULTURE RICE DEVT I 17.3	
			3SILAD03 INTEGRATED AGR.DEVT.II 10.0	
			2ETHAD04 AG.DEV-(UR,ADIABO(SHIRE)) 9.3	
		SIERRA LEONE	2KENA101 BURA IRRIG. SETTLEMENT 40.0	
		ETHIOPIA	2LESAD02 RURAL DEVT. II 6.0	
		KENYA	2MALAD07 LILONGUE III RURAL DEVT. 8.3	
		LESOTHO	2SUDA104 RAHAD IRRIG. II 20.0	
		MALAWI	2SWAAD01 AGRIC. I (R/D LIVESTOCK) 4.0	
		SUDAN	7INSAP06 NUCLEUS ESTATESISMLHDR I 65.0	
		SWAZILAND	7PHLA109 IRRIGATION VII-NISIP II 65.0	
		EAST ASIA	5MYCA107 DOUKKALA IRRIG 30.0	
		INDONESIA	5MYCA111 DOUKKALA IRRIGATION II 41.0	
		PHILIPPINES	5YARA103 AGRIC. TIHAMA II 18.3	
		ENENA	4BRAAD15 MINAS GERAIS DEVT.I 42.0	
		MOROCCO	6HAIAD01 RURAL DEVELOPMENT I 10.0	
		LAC	8INDAD04 CAD CHAMBA (M.P.) 24.0	
		SOUTH ASIA	8PAKA128 IRRIGATION (SCARP-VI) 70.0	
		INDIA	3CHDA101 IRRIG. SATEGUI DERESSIA 7.3	
		PAKISTAN	3NIGAD01 RURAL DEVT.(MARADI) 10.7	
		WEST AFRICA	3NIRAD05 AGR.DEVT-GOMBE 21.0	
		CHAD	3NIRAD14 AGRIC.DEVT.LAFIA 27.0	
		NIGER	3NIRAF02 WESTERN COCOA II 29.0	
		NIGERIA	3TOGAD03 RURAL DEVT COTTON AREAS 14.0	
			3UPVAD02 BLACK VOLTA AGR.DEVT. 8.0	
		TOGO	2MALAD10 SHIRE CONSOLIDATION 10.7	
		UPPER VOLTA	2RVAAD05 RURAL DEV.(BUGESERA) 14.0	
		EAST AFRICA	2RVAAL01 MUTARA LIVESTOCK 3.8	
			7INSAI14 IRRIGATION XI 31.0	
		EAST ASIA	7MAYAD04 JOHORE LAND SETTLEMENT 40.0	
		INDONESIA	7MAYAD06 KERATONG LAND SETTLEMENT 36.0	
		PHILIPPINES	7PHLA111 JALAU IRRIGATION 15.0	
		20.0	ENENA	5JORA101 M.E.GHOR IRRIGARURAL DEV 7.5
			5TUNA101 IRRIG. REHABILITATION I 12.2	
			5TURAD01 AGRIC.RURAL DEVT. 75.0	
			5YUGA102 METOHIJA MULTIPURPOSE I 54.0	
		LAC	4BOLAD01 RURAL DEVT I 9.3	
			6CLRA106 IRRIGATION RENAB. I 21.0	
			6MXCAD02 INTEGRATED RURAL DEVT II 110.0	
			6MXCAD03 RURAL DEVELOPMENT III 120.0	
		WEST AFRICA	3IVCAP13 COTTON 31.0	
		IVORY COAST	3IVCAP16 OIL PALM/COCONUT IV 20.0	
			3SEHAD05 TERRES NEUVES II 2.0	
		SENEGAL	3SEHAL01 EAST SENEGAL LIVESTOCK 4.2	
			3UPVAC02 RURAL DEVELOPMENT FUND 2 9.4	
		25.0	EAST AFRICA	2ETHAI02 DROUGHT REHABILITATION 10.0
			2MAGAL02 LIVESTOCK II 9.6	
			2MALAI03 KARONGA II 9.2	
			2MISAD01 RURAL DEVT. & ENPL. 4.0	
			2TANAD01 RURAL DEVT I (KIGOMA) 10.0	
			2TANAD02 RURAL DEVT III 12.0	
			2TANAD03 COTTON I (GEITA) 17.3	
			2TANAD04 TABORA RURAL DEV.(R/DII) 7.2	
			2ZAIAD02 COTTON REHABILITATION 8.0	
		EAST ASIA	7INSAD01 TRANSMIGRATION I 30.0	
		INDONESIA	7INSAP13 NUCL EST I SMLHDRS II 65.0	
			7MAYAD08 NORTH KELANTAN RURAL DEV 21.0	
		PHILIPPINES	7MAYAD12 LAND SETTLEMENT FELDA VI 28.0	
		PAPUA NEW GUINEA	7PAPAD04 AGRICULTURAL DEVT.IV 12.0	
			7PHLAD01 RURAL DEVELOPMENT II 15.0	
			7PHLAD02 RURAL DEVELOPMENT 25.0	
			7PHLAD09 RURAL INFRASTRUCTURE I 28.0	
			7PHLA104 IRRIGATION V (NISIP I) 50.0	
			7PHLA115 IRRIGATION MAGAT II 150.0	
		THAILAND	7PHLAD01 N E RURAL DEVELOPMENT 21.0	
			7THLA106 NORTHEAST IRRIG.INPROV. 7.0	
		ENENA	5GREAD01 EVROS REGIONAL DEVT. 35.0	
		GREECE	5MYCAD04 KARIA-TISSA RAINFED AGR. 65.0	
		MOROCCO	5MYCAD03 SOUSS GROUNDWATER 18.3	
			5YARAC01 AGR.SOUTHERN UPLANDS 10.0	
			5YARAD01 WADI-HADRAMAUT AGR PROJ 7.0	
		LAC	4BOLAD02 ULLA ULLA DEVT PROJ 18.0	
		BOLIVIA	4BRAAD08 RURAL DEVT - PARAIBA 24.0	
		BRAZIL	4BRAAD10 RURAL DEVT-CEARA 17.0	
			4BRAAD11 INTEGRATED R/D IV-BAHIA 37.0	
			4CLNAD02 LAND COLONIZATION II 19.3	
		COLOMBIA	4CLNAD04 RURAL DEVT.I 52.0	
			4JAHAD01 RURAL DEVELOPMENT I 15.0	
		JAMAICA	4MXCAD01 PAPALDAPAN BASIN DEVT I 50.0	
		MEXICO	4PARAC02 AGRICULTURE II 11.0	
		PARAGUAY	4PARAD01 RURAL DEVELOPMENT II 22.0	
		25.0	SOUTH ASIA	8INDAN03 AGRIC.APPLE PROCESSING 13.0
			8NEPAD01 RURAL DEVT.I 8.0	
		WEST AFRICA	3CANAD06 RURAL DVT FUND 7.0	
		CAMEROON	3CHDAD03 RURAL PROJECTS FUND 12.0	
		CHAD	3GHAAD02 RURAL DEVELOPMENT I 21.0	
		GHANA	3TOGAI01 MARITIME R.D. 9.3	
		TOGO		
	TOTAL			2,543.4

non-Regional file

OFFICE MEMORANDUM

S. Agriculture

TO: Mr. C. Boucher (IRD)

DATE: February 15, 1979

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

SUBJECT: Paper for ICID Special Session, Grenoble France - August/September 1981

1. In response to your inquiry of February 14, 1979, a meeting to discuss the submittal of a Bank paper for the Special Session on Methods of Post-Project Evaluation: Achievements and Remedial Measures was held today by John Malone (OED), Ted Davis (RORSU) and myself. It was agreed that Mr. Malone would take the leadership in preparing a Bank paper. You should advise ICID that the Bank would like to submit a paper for the Special Session. Authors would be:

John M. Malone, Jr. - Chief Evaluation Officer,
Operations Evaluation Department

Andreas A. Meimaris - Senior Irrigation Engineer,
West Africa Projects Department

and one or two other staff members---names to be submitted later.

2. ICID also should be advised that the Bank will not submit papers on either of the two Basic Questions or for the Symposium.

3. Key target dates are by:

(a) February 28, 1979 - authors' names to Central Office, ICID.
Action: IRD.

(b) March 19, 1979 - preliminary draft of Summary and
Conclusions of paper to be submitted for
internal review to OED, AGR and WAP.
Action: Malone (OED), assisted by Meimaris (WAP) and Deboeck (RORSU).

(c) March 26, 1979 - Summary and Conclusions mailed from Bank to ICID
President R. Darvez-Bornoz in Paris.
Action: Malone (OED) and IRD.

(d) Late Spring 1979. ICID advises as to acceptance of paper.

(e) May 20, 1980. Full paper mailed to Central Office ICID.
Action: Malone (OED) and IRD.

FLHotes:rm

cc: Messrs. Malone, Kapur (OED); Davis, Deboeck (RORSU); Meimaris, van Gigch (WAP);
Yudelman, Pickering (AGR/CPS).

OFFICE MEMORANDUM

DATE: February 14, 1979

TO: Mr. R. Gusten (WAPA)

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

SUBJECT: Rice Irrigation Land Leveling Information*S. Aquilino*

1. By cable of February 13, 1979, Rory O'Sullivan of the West Africa Regional Office requested that I pass on to you information on land leveling for rice fields. Enclosed are the following:
- (a) Two copies of my memorandum of September 27, 1977, on Land Leveling Costs and Economics;
 - (b) Three pieces of literature on laserplane; and
 - (c) Two copies of articles on Laserplane Systems in Earthmoving and Land Reclamation.
2. Enclosure (a) has actual capital and operating cost data for small equipment in Pakistan on farms from 1 to 10 acres up 25 acres in size. Page 2 of the first article has equipment lists, p 3 personnel lists and pp 5-6 operating costs.
3. While I recommend against laserplanes until equipment operators, surveyors and engineers are trained in doing a good job of mechanical land leveling, if several thousand hectares are ultimately to be leveled, this may be the way to go later. This method is proving increasingly popular in the southwestern USA. For a basic indicating system (w/o automatic hydraulic controls), the base command module costs about \$9,500/unit. For surveying rods, each satellite unit costs about \$1,100/unit. For each drag scraper towed behind a farm-size tractor, satellite units cost \$9,000/unit. The logical development sequence seems to me to be:
- (a) learn land leveling technique properly;
 - (b) use laserplane for surveying and layouts; and
 - (c) use laserplanes on scrapers when large areas are to be levelled.
- (a) and (b) could overlap in time.
4. Please let me know if you have questions.

Enclosures

FLHotes:rm

cc: Messrs. O'Sullivan (Abidjan - Hold for arrival February 20);
Tillier (WAP) and Pickering (AGR/CPS) w/o enclosures.

Mr. Marius Veraart, AGR

February 13, 1979

Ted J. Davis, RORSU

FY80 Budget

Attached is Budget Form "Backup B Table" for RORSU. It assumes an increase of two staff positions for project specific M & E activities and is supported by the attached memo to Richard Dosik, Chairman of the task force on M & E systems.

I have worked out this table based on manweeks and converted them to manyears. The categories of "other output" used in the table are not easily converted into the activities of RORSU. The category "Advisory" includes all our activity relating to operational advice and guidance on internal monitoring reports, sociological systems, training and cross fertilization, as well as advice and guidance on M & E systems. None is anticipated for the general category of OSA review (which we expect to discontinue). I realize how tight the budget increases are for "other output" but even without the review function and possibly the training function, we still cannot adequately handle the responsibilities placed on RORSU without additional staff - with the renewed emphasis on strengthening our capacity in M & E.

Attachment

cc: and cleared: Leif Christoffersen, AGR

cc: RORSU Staff

TDavis/cc

yellow

OFFICE MEMORANDUM

TO: Mr. Maurice Dickerson (PAS)
(through Ted Davis, RORSU)
FROM: Michael Cernea, RORSU *MCernea*
SUBJECT: Socio-Cultural Capabilities of Consulting Firms

DATE: February 13, 1979

S-Agriculture

Following up on Mr. Pickering's memo of January 23, I prepared the attached short list of descriptors for consulting firms in the Agriculture and Rural Development sector. This list would help describe the firms' competence in dealing with socio-cultural factors related to the design and implementation of agricultural projects. Bank staff often need to know whether a consulting firm has or has not the capability of looking into the socio-cultural context of a project and of assessing its social implications and consequences, the farmers' behavior, and other related issues.

If agreeable, I suggest that these descriptors might be introduced in your list as a sub-section in between the sections now marked "G" and "H".

Attachment

cc: Messrs. D. Pickering, AGR; L. Christoffersen, AGR

MCernea/cc

AREAS OF SPECIALIZATION FOR CONSULTANT FIRMS

AGRICULTURE AND RURAL DEVELOPMENT SECTOR

H. SOCIO-CULTURAL FACTORS

Target group analysis

Value/Belief Systems

Farmers' economic behavior

Peasant Organizations

Self help systems

Participation patterns

Diffusion of innovations

Pastoral groups/nomads

Tribal groups

Fisherman communities

Women in rural development

Socio-economic (household) surveys

Impact evaluation

3 - Agriculture

會員委合聯興復村農國中
JOINT COMMISSION ON RURAL RECONSTRUCTION

37 NAN HAI ROAD, TAIPEI 107, REPUBLIC OF CHINA

CABLE ADDRESS 8515

TELEPHONE 327541

79-CS- 1709

February 13 1979

Mr. F. L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department
The World Bank
1818 H Street N.W.
Washington, D.C. 20433
U. S. A.

Dear Mr. Hotes:

Thank you very much for your letter of Jan. 16, 1979 together with the Report on Field Study in Taiwan - Yunlin Irrigation Association prepared by Mr. Bottrall. Mr. Bottrall has referred the same report to my Irrigation and Engineering Division and the Yunlin Irrigation Association.

This report has been reviewed briefly. It seems to us that this report covers a quite wide field instead of simply on the Management and Organization of the Touliu irrigation project. If the originally adopted term of reference in your contract with Overseas Development Institute, London is such, we would like to introduce Mr. Bottrall to our Farmers Service Division, Plant Industry Division and Rural Economics Division so as to meet your requirements of study in Taiwan. It is the duty of the local irrigation association to manage and operate the irrigation systems. Our Farmers' Associations, in fact, have no much to do with the irrigation work.

After reviewing this report briefly, we have the opinion that (a) some statements deviate from the facts and some have been repeated, (b) our water law has not been properly referred and no enough considerations have been given to the local social conditions, (c) some engineering views or analyses are to be made by engineers, (d) some criticism are rather superficial and no much constructive recommendation has been given, and (e) the conclusion given are not coincided with the statement in the report.

It is a matter of fact that the Touliu system is rather a new project. The construction was started after the restoration. The statement on Page 6 indicating that it was completed before 1947 is incorrect. In fact, the deep wells are mostly done in 1958-1960 instead of in 1960-1975. Many other figures are yet to be carefully reviewed and corrected.

In view of the above, we feel it is not appropriate to distribute this report outside the Bank to other countries. For having this report to get finalized for public distribution, we would like to offer further help if Mr. Bottrall is sent to come again.

Mr. Tibor of your South Asia Regional Office was with us two months ago. He has visited Touliu Project for three days. He might have some comments on this draft report too.

Yours sincerely,



Robert C. T. Lee
Chairman

non-Regional Files

OFFICE MEMORANDUM

S. Agriculture

TO: Distribution List Below

DATE: February 12, 1979

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

SUBJECT: Irrigation Crop Production Functions

1. From time to time during Bank review of irrigation projects, questions regarding the proper amounts of water to be supplied to various crops have arisen. Frequently, the question relates to whether "more" or "less" water would increase or decrease yields. Occasionally, the question of "optimum" water applications for "optimum" yields is raised. Bank irrigation staff should be aware that there are no simple answers to such questions. This memorandum transmits copies of a series of articles which, I believe, provide a reasonable summary of the state-of-the-art on this subject. These articles are:

- (a) Water Deficits - Irrigation Design and Programming
(Hagan and Stewart, June 1972)
- (b) Functions to Predict Effects of Crop Water Deficits
(Stewart and Hagan, December 1973)
- (c) Functions to Predict Optimal Irrigation Programs
(Stewart, Hagan and Pruitt, June 1974)
- (d) Optimization of Water Use Efficiency Under High Frequency Irrigation (Howell, Hiler and Redell - in two parts, 1975)
- (e) Effect of Irrigation Regime on Maize Yields
(Barrett and Skogerboe, 1978)
- (f) FAO publication, "Yield Response to Water (Synopsis)",
August 1978

2. For strict technical accuracy, the subject must be considered in all of many complex interrelationships. For practical purposes, however, one should bear in mind that technical precision is not possible because of the lack of data---this lack in turn resulting from the complexity and number of variables. Researchers have only in recent years begun performing the necessary experiments and, since the experimental data are good only for the particular climate, soils, water, and farming system used, there theoretically are almost an infinite number of possible combinations. Millions of dollars of research work and several decades of time would be required to collect all data needed.

3. Nevertheless, these articles do provide insights into the problem and should help technical planners understand that computer programs will not give absolutely correct answers, but that they can perhaps help in providing a better basis for preparing advice to farmers, agriculturists and engineers on whether to use more or less water and when. Such advice will have to be over a range of values---not in absolute precise amounts of water to be used.

4. All six articles should be understandable to most irrigation agriculturalists and engineers, and to many economists. None of the articles, however, analyze the production economics, although it is mentioned. Furthermore, most of the articles only briefly refer to the fact that crop production functions are more than two-dimensional curves. Water and fertilizer are two of the more important yield determinants, and some work has been done on three-dimensional crop production surfaces using these two variables, such as shown in Figure 3.1 attached, which is taken from a 1974 U.S. Bureau of Reclamation report prepared by Iowa State University at a cost of about a half-million dollars.

5. Subsequently, the Iowa State researchers (in late 1978) extended their analyses of the data, and the results are published in a copyrighted book entitled "Water Production Functions for Irrigated Agriculture." See Attachment "B" for the full title, authors and the Table of Contents. The first four chapters set forth the theory of production functions for irrigated agriculture and should be of special interest to irrigation economists. Agri-culturalists and engineers also should understand the basic principles of this more sophisticated approach to the subject. Although this approach is technically more correct, most of the data is inapplicable quantitatively elsewhere and, hence, judgement and experience will still play key roles in the analysis of irrigation systems and the development of irrigation recommendations. Judgement and experience should be used together with as much factual data as possible. Local research efforts should be encouraged to develop data reflecting the climate, soils, water, people, and farming systems applicable to the particular situation encountered or contemplated. Such research efforts should be carefully focused so that valid results can be obtained in the minimum time possible and within reasonable resource limits. Attention should be concentrated on the more important variables first.

6. Some time this spring we would like to have a seminar on this subject, with presentations by a few selected staff, and entertain questions from other staff. It would be appreciated if the copies sent to Division Chiefs could be given wide circulation within each Division. Comments and questions are solicited.

Attachments *filed separately*
FLHotes:rm

cc: Messrs. van der Tak, Ray (PAS); Picciotto, Rowe, Pranich (6), Tibor (6) (ASP); Kirmani, Blaxall, Golan, Wadsworth (4), W.T. Smith (6) (AEP); Knox, Haynes, French-Mullen (4), Merghoub (4), Frank (3), Naylor (4) (EMP); Adler, Hendry, Walton (4) (EAP); Thalwitz, van Gigh, Grimshaw (3), Berg (3), Tillier (4), Peberdy (3) (WAP); van der Meer, Goffin, Ramasubbu (4), Haasjes (3), Greening (3), Otten (4) (LCP); King (DED); Duloy (2) (DRC); Collins, Donaldson, Kanchanalak, Kimura, Peters, Thoolen, Franssen (AGR/CPS); Coulter (CGR).

cc: Without Attachments -Messrs. Yudelman/Pickering (AGRDR/CPS).

All Assistant Directors and Division
Chiefs of Agriculture Divisions
Ted J. Davis, Chief, RORSU (AGR)

February 12, 1979

Seminar on "Survey and Sampling Techniques for Monitoring and
Evaluation of Poverty-Oriented Projects"

1. Many of the staff who have attended one of RORSU's workshops on monitoring and evaluation have requested more information on low-cost approaches for survey and sampling techniques.
2. I have therefore invited Mr. Samuel R. Daines of Practical Concepts, Inc. to conduct a seminar on the above, on February 21 at 10:00 a.m. in Room D 556.
3. Mr. Daines has extensive field experience in the design and implementation of surveys for project evaluation, especially in Latin America. He prepared a manual on "Economic and Data Analysis Techniques for Project Design and Evaluation," which contains a systematic overview of techniques for data collection, measurement and analysis. A copy of this manual is attached. Additional copies can be obtained from Mrs. Griddle, extension 76882.
4. Would you please bring the announcement of this seminar on "Survey and Sampling Techniques for Monitoring and Evaluation," to the attention of your staff.

cc: Messrs. Yudelman, Christoffersen, Pickering, Turnham
Tholin, AGR Advisors, Drewes, van der Tak, ~~Desik~~, Lethem

Attachment

TJDavis/nim

OFFICE MEMORANDUM

Yellow

TO: Mr. Hendrik Groen (PER) Through Ted J. Davis

DATE: February 12, 1979

FROM: Michael Cernea (AGR) *M. Cernea**S. Agimelme*SUBJECT: Classification of Sociological Consultants' for the
Computerized Bank System

Attached is our proposed classification of anthropological and sociological consultants by area of expertise.

The proposed subcategories allow sufficiently ample professional fields for classifying the skills of both professionals from our own sociological roster, who have already worked for the Bank, and those who are employable by the Bank in the future. The subcategories suggested for agricultural activities are more detailed and numerous since this is the sector of Bank lending which uses sociological expertise more than other sectors and is intrinsically more diversified. As such, our classification is aiming at following the design of the overall Bank computerized system for yielding "short lists" of sociological/anthropological consultants who are potentially appropriate candidates to carry out a Bank task.

I would like also to formalize three proposals for coding additional information concerning anthropological/sociological consultants, per your advice.

- a. The first involves the coding of "primary" vs. "secondary" geographical areas of expertise. We feel that such a distinction is warranted by the patterns of professional specialization of anthropologists/sociologists as well as by the need of various Bank departments to be informed quickly of the consultants' intensive field experience.
- b. Secondly, it is important for the Bank staff to be briefed readily about the consultants' degree of operational/developmental experience. Thus, we propose a computerized coding for operational experience with three degrees; little/moderate/considerable (1-2-3). Neither area of geographical concentration alone, nor previous place of employment per se, unfortunately, can indicate with a fair amount of assurance if the consultant has had experience in actual project design, implementation and social engineering.
- c. Finally, it may prove useful to have an indication of whether the consultant was asked by the Bank to be part of the roster or whether he/she is an unsolicited CV. This datum could be easily added to Personnel's roster form by the designation "RQ (requested) /U (unsolicited)", as it's marked on our own sociological roster form.

As indicated in Mr. Davis' memorandum to you, RORSU is prepared to co-finance the costs of computerizing the proposed anthropological and sociological consultant listing up to \$700.

cc: Messrs. Yudelman, Christoffersen, Pickering
Attachment

MCernea/mhm

SOCIOLOGISTS' AND ANTHROPOLOGISTS' AREAS OF EXPERTISE

Classification for Consultants

09010000

RURAL SOCIOLOGY/ECONOMIC ANTHROPOLOGY

0901010000 Land Tenure Systems/Agrarian Reform
0901020000 Irrigation Systems/Water Users Associations
0901030000 Rainfed Agriculture/Subsistence Farmers
0901040000 Cash Crop Development/Technological Change
0901050000 Pastoral Groups/Livestock Development/Nomads
0901060000 Fishermen Communities
0901070000 Forestry/Social Forestry
0901080000 Landless Laborers/Tenants
0901090000 Land Settlement
0901100000 Compulsory Resettlement
0901110000 Cottage Industries/Rural Industries
0901120000 Peasant Organizations
0901130000 Family/Kinship Systems
0901140000 Women in Rural Development
0901150000 Tribal Groups
0901160000 Community Development
0901170000 Self-Help/Voluntary Associations
0901180000 Rural Cooperatives
0901190000 Extension Systems/Diffusion of Innovations
0901200000 Credit Institutions/Behavior
0901210000 Marketing Systems
0901220000 Rural Roads
0901230000 Health Services
0901240000 Training
0901250000 Rural-Urban Migration
0901260000 Other

0902000000

URBAN SOCIOLOGY/ANTHROPOLOGY

0902010000 Housing/Sites and Services
0902020000 Squatter Settlements
0902030000 Labor Migration
0902040000 Urban Employment/Labor Markets
0902050000 Women's Roles in Urban Development
0902060000 Urban Health Services
0902070000 Evaluation of Urban Programs

0903000000

EDUCATION SOCIOLOGY/GEOGRAPHY

0903010000 Formal Training
0903020000 Literacy Programs
0903030000 Non-Formal Education
0903040000 Evaluation of Learning Achievement
0903050000 Distribution of Access to Education
0903060000 School Leaver Performance in Labor Market
0903070000 School Location Planning
0903080000 Sociolinguistics/Language Planning

0904000000

POPULATION/FAMILY PLANNING

0905000000

NUTRITION AND MEDICAL ANTHROPOLOGY

0906000000

TOURISM SOCIOLOGY

0907000000

EVALUATION/MONITORING SYSTEMS/ SOCIAL RESEARCH

0907010000 Survey Design
0907020000 Impact Evaluation Studies
0907030000 Project Implementation Monitoring
0907040000 Farm Management Studies
0907050000 Income Distributor Studies
0907060000 Village Community Studies
0907070000 Social Indicators
0907080000 Research Assistants

DIRECTORY OF THE SOCIOLOGICAL ROSTER

ADAMS, Richard
AHMED, Abdel Ghaffer
AIT-AMARA, Hamid
ALAO, Joseph AdebANJI
ALBENQUE, Alexandre
ALI, Syed Husin
BA, Sekoli Dumar
BABERIS, Corrado
BANKS, Eugene
BARNADAS, Alfred P.
BARTON, Clifton G.
BAZIN, Danielle
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BERGH, Rice
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BUNNAG, Jane
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BUVINIC, Mayra
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CASTILLO, Gelia
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COOK, Michael John
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CROUCH, Bruce R.
DIAS, Gentil
DON, Yehuda
DRAVI, Mokpokpo
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FAHIM, Hussein Mohamed
FIRKEY, Mona
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FORTMAN, Louise
FREEMAN, David

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GALJART, Benno F.
GELBER, Marilyn
GENTIL, Dominique
GOODELL, Grace
GRANDE, Odd
GRAYZEL, John
GREEN, James
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HAMMOND, Peter
HARIK, Iliya
HARRELL-BOND, Barbara
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HILL, Reuben L.
HOCHET, Jean-Marie
HOROWITZ, Michael
IBRAHIM, Saad-Eddin
INGERSOLL, Jasper
INKELES, Alex
JELINEK, Lea Olga
JULES-ROSETTE, Bennetta W.
KAPLAN, Irving
KLEYMEYER, Charles
KOCH-WESER, Maritta
KUDAT, A.
KUEVI, Dovi
LEE, Hung-Tak
LEMARCHAND, Rene
LEONARD, David
LEWIS, John
LOWDERMIK, Max
MARTINOTTI, Guido
MEHTA, Shiv R.
MENDRAS, Henri
MERINSSI, Fatima
MIGNOT-LEFEEVRE, Yvonne
MOGEY, John M.
MUKHERJEE, Ramkrishna
NDETI, Kivuto
NORONHA, Raymond
OJIKUTU, Raimi
OKE, Finagnon
OKEDIJI, Francis
OKONJO, Unokanma
OMARI, C.K.
OPPONG, Christine

SOCIOLOGICAL ROSTER (continued)

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RAMBAUD, Placide
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REINING, Priscilla
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ROLING, Niels
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ROY, Prodipto
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VILAKAZI, Absolom
WADE, Robert
WADEKIN, Karl-Eugen
WARMAN, Arturo
WEEKS-VAGLIANI, Winifred
WEINTRAUB, Dov
WERGE, Robert W.
WILHELMSSEN, Finn
WOLFSOHN, Max
ZEINDENSTEIN, Sondra

February 1979

S. Agriulme

Mr. Graham Donaldson, AGR

February 12, 1979

H.E. Walters HEW/ydw

Comments on "The Forward Programming of World Bank Project Support to Food Production and Nutrition Improvement Goals in Developing Countries"

1. The points in the paper are excellent. I would only say again that the paper would more effectively address the issue of the meeting if the points which pin-point "pipeline" problems could be brought out more directly and accompanied by proposals for overcoming bottlenecks. For example:

2. If it is true, as indicated in para. 2, that Bank lending is outstripping that of countries in the food and nutrition area, this only reinforces the point about external resources - the Bank is ahead of the countries and other sources of external assistance. This must be posing problems and provides a good case for increased action elsewhere.

3. There seems to be a good case for stressing (para. 10) that "technical limitations" are a problem. Therefore, should not a greater effort be called for to concentrate on key technical bottlenecks.

4. Para. 14 suggests that the actual "incentive environment" is a bottleneck and relates directly to the paper on "internal priorities".

5. I would like to see the points in para. 15-18 made more strongly. It seems obvious that local management, matching funds, budgetary stringency and recurrent costs are key bottlenecks. Is it not possible to state that unless specific actions are taken to deal directly with these problems they will continue to limit the "pipeline". Maybe there should be room for projects which deal directly with them.

6. The same applies to the points in para. 24-34. These are precisely the "pipeline" problems. We should be in a good position to say that unless effective means are found to deal more effectively with these problems the absorptive capacity will be limited.

7. The points in para. 39 and 40 - the need for large projects to absorb funds and the need to "innovate and pioneer" are especially important. Real action on food and nutrition needs both and this is not well understood. It means some rethinking of the concern about "countries getting too much" and more tolerance about projects and programs that may not work well at first.

8. Finally, it would help if the presentation were more in terms of the problems as general pipeline problems rather than as specific Bank experience. The problems are well identified and should be brought out even more dramatically.

- cc: Messrs.: M. Yudelman
- T. Goering
- attachment D. Turnham
- C. Lewis
- B. Abba

OFFICIAL FILE COPY

HEWalters:ydw

S. Agriculture

Mr. Graham Donaldson, AGR

February 12, 1979

H.E. Walters *HEW/yw*

Comments on "External Resource Flows for Food and Nutrition"

1. This is a good presentation of the Bank's response to the food and nutrition problem. I hope, however, that the final paper will address more directly the issue of the extent to which inadequate external resources are a factor limiting food production and nutrition improvement in the developing countries.

2. The Bank's response has been the most dynamic by far, both in increased lending and in a shift of priority. This obscures the fact that the total flow of external assistance (excluding that of the Bank) has grown very slowly, especially since 1975, and the shift of priority (outside the Bank) has been modest. Since this puts the Bank in a good light, we should note the limiting effect of the total external response.

3. I would suggest that rather than say (para. 1, page 1) that "it can no longer increase the share of its resources devoted to food production and rural poverty projects", we say something like: "it seems neither efficient nor desirable to increase the proportion of Bank lending for food production and poverty beyond its presently high level. Pressing needs in other economic sectors are required for balanced growth and many of these are necessary to support or reinforce efforts in the food and rural development areas. It is therefore imperative that the total lending capacity of the Bank be expanded to permit effective, continued rapid growth in Bank food and nutrition lending". This would clarify the need for expanded Bank lending capacity and the need for overall balance. It would also provide an opportunity to suggest the need for expansion in external assistance elsewhere.

4. The point (page 1, para. 2) that investment in rural areas is not limited to ARD is a good one, and directly relates to the above issues. They could be more directly linked.

5. The "Investment Requirements" section is important. It might be clarified by three points I see in it:

a) That there are areas, such as the irrigation pipeline (last line of para. 16), where the essential limiting factor is investment. I suspect this applies also for countries such as India and IDA in general - if there was more concessional money it could be effectively used and the problems solved faster;

b) The "known" investment requirements exceed substantially the "known" availabilities; and

c) That since "this growth rate would allow for a very modest decrease in the incidence of absolute poverty" (para. 17) and presumably therefore hunger and malnutrition; the need for additional external resources to backup efforts to directly tackle food and nutrition problems in a way that would reduce these effects of poverty requires still larger flows of resources.

6. What is in para. 18 should be a larger part of the paper on "internal priorities".

7. Para. 19 provides an important point to link the need for expanded efforts internally and externally. It also provides a place to stress that while Bank resources need to be expanded so especially do those of donor countries which have been slower to respond and shift. I realize there might be a "conflict of interest" here. Part of the growth in Bank lending has come about because donors have put their money through the Bank rather than elsewhere. But it would not be appropriate in a meeting concerned with the total availability of external resources to limit the Bank's concern primarily to those resources which pass through it.

8. Finally, a sharper pitch should be made that to go more deeply and effectively into the heart of the food-nutrition-poverty problem requires a bolder, sustained effort in areas which at this point are still outside the normal pattern of lending, for example, program loans (mentioned in para. 18, B) and more complex RD and Nutrition projects and programs. It could be argued effectively that expanded resources for these activities is a necessary pre-condition to launching them more forcefully now, and would in the future, play a progressively larger role in Bank lending, in addition to orthodox activities. Without increased resources for the "new" programs and projects there will be a tendency to go slowly on them and to favor those activities where experience and certainty of results is greater, but which do not get at the problem as directly.

cc: Messrs.: M. Yudelman
T. Goering
D. Turnham
C. Lewis
B. Abbai

attachment

HEWalters:ydw

Mr. George West (CAD)

February 9, 1979

Ted J. Davis (AGR)

Request For Change of a Terminal

1. RORSU is currently renting a DEC Writer II and a Teletype Model 43 for all work related to internal monitoring, special studies, and ad hoc requests for information from the AGR Information Retrieval System maintained under our contract with Tymshare.

2. The attached table shows the use made of the system in the period July to December 1978. Since future demands on the system are expected to further increase from the current average of 107 sessions, and 67 hours of terminal connect time per month, would you please arrange for replacement of the DEC Writer II by a CRT terminal, a high speed line printer, and a modem for data transmission at 1200 baud.

3. This change in terminal is requested primarily to keep the cost of our external computing services down, and to obtain higher quality and faster printed outputs than are feasible with the DEC writer.

4. I would prefer to obtain a semi-intelligent CRT-terminal with at least 4K memory such that a great deal of the programming and preparation of the data can be done off-line, before sending it to the Tymshare computer. The CRT-terminal should further have a switch selectable baud rates (110-9600), 24 lines by 80 characters screen, and upper/lower case. The high speed line printer should preferably have bi-directional and compressed printing (or printing density up to 16.5 CPI), allowing for 132 characters on 8 1/2 inch paper. This would eliminate the need for photoreduction of every table that is produced and also save time in the preparation of our reports.

5. Mr. David Rix suggested to us an Owls terminal and Pussycat line printer from Perkin-Elmer, similar to the ones used by Controller's Department. One of my staff members has contacted Mr. Murias in Controller's Department and came to the conclusion that (i) the Owls terminal would be acceptable -- but we would prefer a semi-intelligent version of it; (ii) the line printer used in Controller's Department would be absolutely unsuitable for our needs. Attached are descriptions of models 350 and 736 of Tymshare, which come closer to the type of printer we are looking for. I trust that there are many other ones you can recommend to us and, probably obtain at lower monthly rental charges. I would therefore like to rely on your judgment as to the selection of a CRT terminal and line printer.

6. I would appreciate if you could arrange for the installation as soon as possible of a CRT terminal and line printer with the above described features in Room D 710 in replacement of the DEC Writer II.

7. The additional monthly ~~rental~~ charges for the replacement of our terminal will be transferred from AGR's budget, as soon as you inform me about the exact amount.

Attachment

GD/dc

cc: Mr. David Rix

Table
 ACTUAL USE AND COSTS OF THE
AGR COMPUTERIZED INFORMATION SYSTEM JULY-DECEMBER 1978

	Number of Sessions at the Terminal <u>1/</u>	Terminal Connect Time in hours <u>2/</u>	Tymshare Recording Units (TRU's) <u>2/</u>	Total Cost	Cumulative Total
July 78	n.a.	n.a.	n.a.	\$ 2,119	\$ 2,119
August 78	70	53.7	11,537 (0.9%)	\$ 3,352	\$ 5,471
September 78	133	51.6 (7%)	8,954 (10%)	\$ 4,127	\$ 9,598
October 78	166	132.6 (30%)	37,650 (36%)	\$ 8,297	\$17,895
November 78	124	77.7 (30%)	25,096 (34%)	\$ 5,295	\$23,190
December 78	43	21.4 (28%)	4,419 (58%)	\$ 1,035 <u>3/</u>	\$24,225 <u>3/</u>
Total	536	337.0	87,656	\$24,225	
Average/Month	107	67.4	17,531		\$ 4,037

- 1/ A second user's number was requested in August and became operational in September 1978. This explains the nearly doubling of the number of sessions from September 1978 on.
- 2/ The proportion of non-prime time for terminal connect time and TRU's is shown between brackets. The rates for non-prime time use, i.e., after 6:00 p.m. and on week-ends, are half those of prime time use.
- 3/ Since the actual expenditures for December 1978 were not yet provided to us at the time of this report, these represent cost estimates based on our own records. Actual costs for December 1978 may be slightly different, which would also affect the cumulative total for the period July to December 1978.

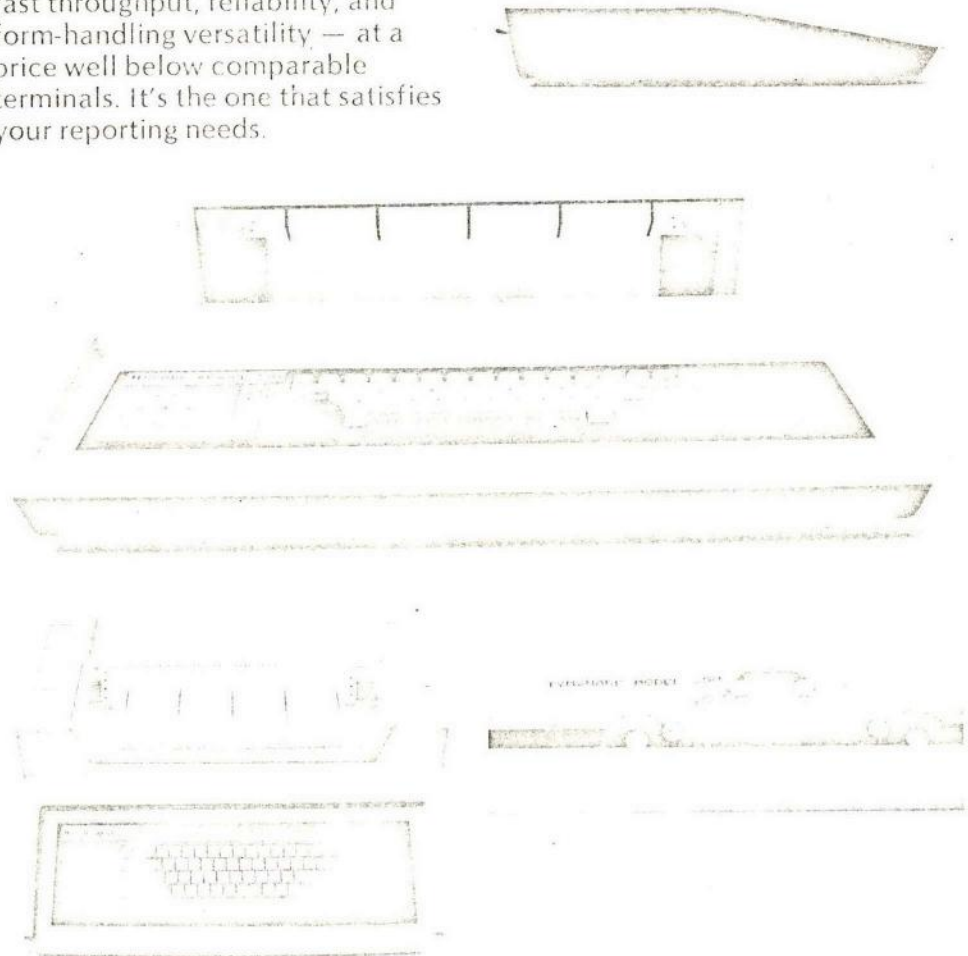
Tymshare Model 350: Low-cost report generation terminal

The Tymshare Model 350 offers you high-performance reliability in a report generating terminal. Terminal speeds of up to 150 CPS can be selected and the Model 350 provides excellent print quality. Many special features include

- Bidirectional printing. An on-board microprocessor controls a unique look-ahead facility that switches the Model 350 automatically to incremental, unidirectional or bidirectional printing.
- Compressed printing. Print density of 10 or 16.5 CPI is switch-selectable. You can avoid the expense of large document photocopying by printing 132 characters on an 8½ inch-wide page at 16.5 CPI.
- 3-digit status display. The display shows the current row or column as well as coded information about the status of the terminal and the microprocessor selftest.

The Model 350 prints the full ASCII complement of 96 upper- and lower-case letters, numbers, and symbols. The carriage adjusts to accommodate paper from 3 to 15 inches wide. To enhance its forms flexibility, the

Model 350 allows simultaneous horizontal and vertical tabulation as well as push-button top-of-form control. With the Model 350 you can print an original and five high-quality copies. Choose the Model 350 for fast throughput, reliability, and form-handling versatility — at a price well below comparable terminals. It's the one that satisfies your reporting needs.



The importance of terminals to Tymshare makes a Tymshare terminal better for you.

Your daily link to the total service Tymshare offers is your terminal. It must be convenient, reliable, and efficient, for us to provide the quality service that satisfies your information management needs and solves your data processing problems. That's why our terminals have all the special capabilities you require. And why Tymshare takes full responsibility for servicing and maintaining your terminal. So our total service package is delivered effectively.

We exhaustively test all terminals in our product line to guarantee reliability. After your terminal is installed, we provide the routine and special maintenance that minimizes service interruptions.

Tymshare offers a complete line of portable, video display, cassette, and report generating terminals. We have a terminal just right for you — one with the features and reliability you need.

Behind your terminal is that part of Tymshare's total service you don't see: state-of-the-art computers and peripherals; the latest innovations in software, data base management systems, and applications packages; and a high-speed data communications network you can access for the price of a local phone call.

But the part of our total service that you do see — the terminal in your office — is the part that reflects the rest. Tymshare is your best guarantee of terminal quality and dependability.

Model 350 specifications

PRINTING

Impact, 9 x 7 wire matrix

Spacing: 6 lines/inch

10 or 16.5 characters/inch

Character set: 96 USASCII printed

Printing positions: Up to 132 characters per line on an 8" line:

Up to 217 characters per line on a 13" line

PAPER HANDLING

Tractor feed

Adjustable width: 3-15 inches

(7.62-38.1 cm)

Copies: 5 plus original

Variable top of form

Horizontal tabulation

Vertical tabulation

Out-of-paper disable

Local top-of-form

Margins: left and right; top and bottom

PRINTING RATE

Switch selectable: 110-9600 BAUD,

150 cps

KEYBOARD

ANSI/typewriter layout

Character set: 128 USASCII generated

DUPLEX

Switch-selectable: half, full

INTERFACE

EIA RS-232C standard

ENVIRONMENT

Temperature: 50°F to 104°F

(10°C to 40°C)

operating

— 40°F to 151°F

(— 40°C to 66°C)

nonoperating

SIZE

Height: 8.25 inches (20.9 cm)

Width: 26 inches (66.04 cm)

Depth: 21 inches (53.34 cm)

Weight: 40 lbs. (18.14 kg)

POWER REQUIREMENTS

90-130 V AC, 47-63 Hz

150 W maximum, 75 W average



Corporate Headquarters, Cupertino, California

Western Region Headquarters
Mountain View, California

Eastern Region Headquarters
Darien, Connecticut

Tymshare's Model 736: Flexible, reliable and bidirectional

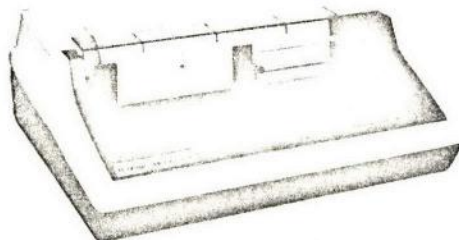
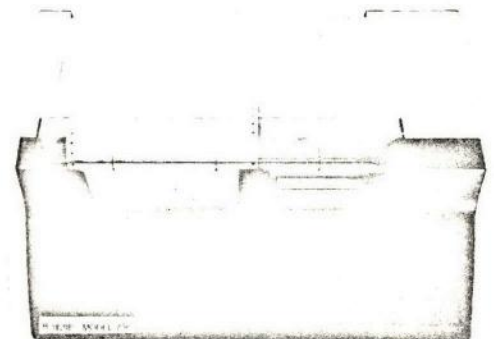
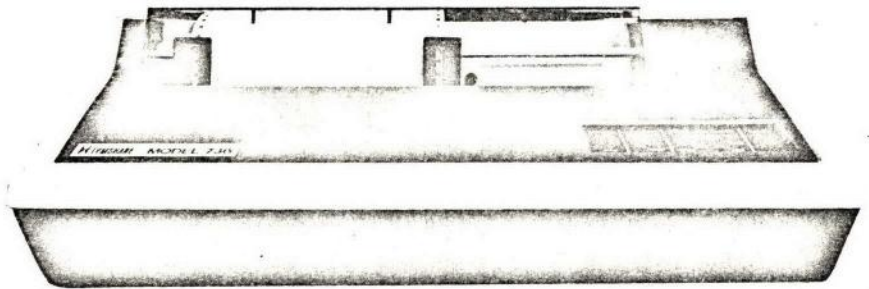
The Tymshare Model 736 Receive-Only Printer is a multicopy, impact printer. Because of a unique, look-ahead feature controlled by an on-board microprocessor, the Model 736 is able to print both from left to right and from right to left. Bidirectional printing minimizes printhead travel time—the printhead need not return to the left margin to begin each new line—and correspondingly increases available print time.

The Model 736 prints 150 characters per second. Effective throughput is from 60 full 132-character lines per minute up to 440 lines per minute maximum, based on an average line of 10 characters. The 7-wire matrix printhead can create up to 6-part, high-quality printed forms employing the full ASCII complement of 92 upper- and lowercase letters, numbers, and symbols.

An extra-wide, 132-column carriage is easily adjustable to accommodate a variety of paper formats and sizes, from 3 to 15 inches wide. To complement its forms flexibility, the Model 736 allows simultaneous horizontal and vertical tabulation, lets you skip page perforations, and automatically spaces to the top of a new form.

The Model 736 and the Model 430 video display unit make an ideal combination. You receive the benefits of the quiet and economical operation of the Model 430, yet retain the ability to produce a printout whenever you desire.

For high throughput, reliability, print quality, and forms-handling versatility at a price well below that of comparable printers, the Tymshare Model 736 printer is the one to satisfy your remote information needs.



The importance of terminals to Tymshare makes a Tymshare terminal better for you.

The remote computer access terminal makes it possible for Tymshare to deliver its broad service capability to you, our user. This terminal is not a mixed group of components but a single, integrated connection between you and Tymshare. Because trouble-free, noninterrupted operation is extremely important in such a connection, Tymshare performs exhaustive testing on every terminal before it is added to our line of products. Then, when we recommend a particular terminal for you, we are certain that it will serve properly and reliably.

Tymshare considers itself solely responsible for delivering our services to you. After we install a terminal, we support it with the most competent service available anywhere. Thus, because we are your complete and only supplier, we are involved both with routine maintenance and with special maintenance; it is this sort of thorough attention that reduces the frequency and the duration of service interruption. The total service view is fundamental at Tymshare because we are concerned about quality.

Model 736 specifications

PRINTING

Impact, 9 X 7 dot matrix
Bidirectional printhead
Vertical spacing: 6 or 8 lines/inch
Horizontal spacing: 10 char/inch
Vertical tabulation
Horizontal tabulation
Printing positions: 132
Printing rate: 150 char/sec
Character set: 92 ASCII printed
Operator-initiated off-line test

PAPER HANDLING

Tractor pin feed
Adjustable form width: 3 to 15 inches
Number of copies: 5 plus original
Variable top-of-form position
Continuous forms handling
Paper-out indicator

INTERFACE

Serial EIA RS-232-C standard

BAUD RATE

Switch-selectable 110, 150, 300, 1200,
2400, 4800, or 9600

PARITY

Switch-selectable odd, even, or none

LINE BUFFER

256 characters

TEMPERATURE

5° to 40°C operating
-30° to 70°C storage

SIZE

Width: 25¾ inches
Height: 8 inches
Depth: 20 inches
Weight: 55 pounds

POWER REQUIREMENTS

200 W
120 V rms; +10%, -15%; 47-63 Hz



Corporate Headquarters, Cupertino, California

Western Region Headquarters
Mountain View, California

Eastern Region Headquarters
Darien, Connecticut

S. Agricultural

Those Listed Below

February 9, 1979

Jim Goering, AGREP

The Supermarket on a Stalk

1. Occasionally one finds written material which is exciting in terms of its implications for the work we do. Perhaps the attached is one such piece. A question for the experts: Does the winged bean have the development potential which this article suggests? And should the Bank be taking additional steps to capitalize on this potential? n/alt

2. Dr. Vietmeyer, the author, is a trained chemist and member of the US National Academy of Sciences Board on Science and Technology for International Development.

Cleared with and cc: Mr. G. Donaldson

Distribution:

AGREP Staff
Messrs. M. Yudelman
D. Pickering
L. Christoffersen
C. Collins
G. Darnell
B. Gray
J. Fransen
A. Berg
E. Schebeck
B. Thoolen

Attachment

TJGoering:ga

Non-Regional File

OFFICE MEMORANDUM

s-Agriculture

TO: Messrs. F.L. Hotes, J.C. Collins, W. Peters (AGR/CPS) DATE: February 9, 1979

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

SUBJECT: TERMS OF REFERENCE - Mission to Rome, Italy and Grenoble, France

1. You will represent the Bank at the Expert Consultation on Land Evaluation Criteria for Specific Land Uses (Irrigation) sponsored by FAO to be held in Rome, Italy, February 27 - March 2, 1979. Mr. Hotes will lead the mission, and Mr. Peters will present a paper on "Bank Requirements in Land Selection for Water and Land Resource Development."
2. Following the consultation meeting in Rome, Mr. Collins will return to Headquarters, while Messrs. Hotes and Peters will proceed to Grenoble, France, for meetings on March 6, 1979, with SOGREAH, consultants on several Bank-financed projects. The discussions with SOGREAH should concentrate on their soil survey and land classification procedures, methodologies and laboratory support information, with the general objective being a better understanding by SOGREAH of Bank irrigation project land classification needs and a better understanding by the Bank of the consultants' capabilities and problems in these regards.
3. Upon return to Headquarters, Mr. Peters will prepare two separate reports on the two meetings with the assistance of Messrs. Collins and Hotes.

FLHotes:rm

cc: Messrs. Niaz (EMP); Yudelman (AGR/CPS).

Mr. Hendrik Groen (PER)

February 8, 1979

Ted J. Davis (AGR)

Support for the Computerization of the RORSU Roster of Sociologists
Consultants

1. Following your conversation with Mr. Michael Cernea, we agree to co-finance the cost of computerizing the files of sociologists and anthropologists currently in the RORSU roster. We will contribute \$700 and will assist you also with supervising the coding process.
2. Mr. Cernea is preparing a classification which will allow a speedy retrieval of sociologists who can assist the Bank in the various subsectors of agricultural and rural development activities.

TD/dc

cc: Messrs. Christoffersen, Cernea

S. Agrimelino

February 7, 1979

TO: Participants in Seminar on
Food Production and Distribution

FROM: Montague Yudelman, Director,
Agriculture and Rural Development Dept. *MLY.*

SUBJECT: Arrangements for Seminar

1. You will find attached to this memorandum a tentative schedule, a list of participants (as of 2/5/79) and a summary of the World Bank position papers. The full drafts of the World Bank papers, as well as any others we have received, will be made available when you arrive in Washington. It is our expectation that the meetings will be informal, encouraging substantive discussion on the operational issues before us. Mr. Maurice Williams, at our invitation, has agreed to chair the seminar. After the meeting concludes, we will prepare, on our authority, a report on the seminar for transmittal to the World Food Council.

2. Please inform my office as to the time of your arrival and where you will be staying in Washington so that conference materials can be delivered to you. If that should be inconvenient, materials will be available at the conference room (E-124+) the morning of February 22.

Attachments

GDonaldson/CLewis:et

INTER-AGENCY SEMINAR ON
FOOD PRODUCTION AND DISTRIBUTION

WORLD BANK
Washington, D.C.
22-23 February, 1979

Tentative Schedule

February 22, 1979

- 10:00 a.m. COFFEE.
- 10:30 a.m. INTRODUCTION:
ORIGINS AND PURPOSE OF MEETING.
Mr. Harry Walters (formerly WFC; now Food Adviser, World Bank).
REPORT ON OTHER SESSIONS HELD UNDER WFC MANDATE.
WFC Staff.
- Item 1. RESOURCE FLOWS.
Introduction by Mr. Maurice Williams (Executive Director, WFC).
Discussion.
- 12:30 p.m. OFFICIAL LUNCHEON FOR SEMINAR PARTICIPANTS.
- 2:00 p.m. Item 2. NATIONAL POLICIES AND PRIORITIES.
Introduction by Mr. John Mellor (Executive Director,
International Food Policy Research Institute).
Discussion.
- 3:30 p.m. COFFEE.
- 3:45 p.m. Item 3. OPERATIONAL EXPERIENCE - FOOD PRODUCTION.
Introduction by Mr. Samar R. Sen (former Executive
Director for India, World Bank).
Discussion.
- 5:30 p.m. RECESS.
- 6:15 p.m. OFFICIAL RECEPTION.

February 23, 1979

9:30 a.m. Continuation on Item 3.

Item 4. OPERATIONAL EXPERIENCE - DISTRIBUTION PROBLEMS
Introduction by Dr. C. Peter Timmer (Department
of Nutrition, Harvard School of Public Health).
Discussion.

12:30 p.m. LUNCH.

2:00 p.m. DISCUSSION OF CONCLUSIONS AND RECOMMENDATIONS.

5:30 p.m. CLOSING.

LOCATION

Working sessions:	World Bank 1818 H Street, NW Washington, D.C.	Room E-1244
Official Luncheon:	World Bank	D Building Executive Dining Rooms A and B
Official Reception:	World Bank	D Building Executive Dining Rooms A and B

STAFF RESPONSIBILITIES

Chairman:	Mr. Maurice Williams (Executive Director, WFC)
World Bank participation:	Mr. Montague Yudelman (Director, Agriculture & Rural Development Dept., World Bank)
Logistics at meeting:	Ms. Moreen Tolerton World Bank - Room D-803 Tel. 477-3692
Secretary of Meeting:	Mr. Clifford M. Lewis World Bank - Room A-1241 Tel. (203) 477-6436

Participants at February 22-23 Meeting on
Food Production and Nutrition

(as of January 31, 1979)

United Nations Development Programme

Mr. Gordon Havord, Acting Director
Division for Program Development, Support and Evaluation

African Development Bank

Mr. G.E. Gondwe, Vice President Operations
Mr. G. Dossou, Director of Projects

Asian Development Bank

Dr. E.F. Tacke, Manager, Rural Development and Agricultural Credit Division
Agriculture and Rural Development Department

Inter-American Development Bank

Mr. Jose D. Epstein, Manager, Plans and Programs Department
Mr. Mauricio Herman, Chief, Agricultural Division, Project Analysis Dept.
Mr. Oscar O. Fuster
Mr. Jose Kohout
Mr. James Taylor

International Fund for Agricultural Development

A.A. El Sherbini, Chief, Planning and Programming Division,
Economic and Planning Department

World Food Program

Joseph Moscarella, Economic Advisor

Food and Agriculture Organization

Mr. B.S. Mahajan, Adviser, Special Development Subjects
Development Department

Outside Experts

Dr. Walter P. Falcon, Stanford Food Research Institute, USA
Dr. Francis Idachaba, University of Ibadan, Nigeria
Dr. John Mellor, International Food Policy Research Institute, USA
Dr. Mubyarto, University of Gadjah Madah, Indonesia
Dr. Eric Thorbecke, Cornell University, USA
Dr. Samar Sen, India
Dr. Lucio Reca, Argentina
Dr. C. Peter Timmer, Harvard University, USA

INTER-AGENCY SEMINAR ON
FOOD PRODUCTION AND DISTRIBUTION

World Bank Summary Paper

The World Bank
Agriculture and Rural Development Dept.
February 1979

World Bank Summary Paper

Background

1. The World Bank's role in increasing food production and improving nutrition in developing countries has changed dramatically over the last ten years. Rural development projects, designed to increase the productivity and income of small farmers with food being the major output, have been the fastest growing component of the World Bank's lending program. In the period FY69-73 roughly 18% of total lending went in Agriculture and Rural Development with a large proportion of the investment devoted to increasing production of cash crops for export. In the period FY74-78 about 30% of total lending was for Agriculture and Rural Development with a concomitant re-orientation of investments towards alleviating malnutrition through increasing incomes and stepped up food production. The overall level of World Bank intervention in the food sector was marginal in the late sixties. Today, World Bank supported projects represent a significant proportion of total public investment in food production schemes and the aggregate impact of sector activities - including research, project design, project implementation, policy dialogue, training and technical assistance - is far from marginal in its impact on developing countries. In the process of expanding its activities, significant modifications have occurred in Bank/country dialogues, and in types of support offered.

2. The Bank's entry base for future support of food production and nutrition activities is therefore vastly different from what it was ten years ago or even five years ago. Its lending activities encompass a wide range of institutions and ongoing programs. With some agencies and programs, the depth of Bank participation has become considerable. In such cases, carefully nurtured institutional capabilities facilitate new lending activities and enhance the impact of our dialogue on policy and other major issues. With an activist and promotional stance toward food production and distribution lending, the Bank has considerably extended both technical and financial support for institutional development in the borrowing countries, whether this be for purposes of project planning, preparation and implementation or sector management. This has been accompanied by a substantial increase in manpower allocations and in-house expertise for food production and distribution interventions, which is organized in regional and country based operating units.

3. All indications point to a need for substantially greater external resource flows into this sector. Although precise calculations would be misleading, the Bank's experience over the last five years indicates that implementing rural development schemes will be increasingly expensive as progressively less developed regions become the loci of project interventions. Applying recent experience with IDA, it seems that incremental capital to output ratios (ICORs) are significantly greater in regions where malnutrition is most pervasive, with the additional costs of such projects escalating rapidly. The Bank plans to continue its present high level of activity in this area. However, the share of total resources devoted to rural poverty and food production projects cannot be increased further given the claims of competing sectors. Therefore, increased operations in this sector can only be financed by general increases in overall Bank resources.

4. In expanding the project portfolio and increasing the level of related activities, a variety of problems have been encountered that have inhibited or reduced the effectiveness of the program. These can be expected to influence future operational performance in varying degrees, with the specific impact depending on particular country circumstances. The problems encountered thus far can be classified into three categories: (1) domestic political and social framework, (2) project design, and (3) distribution problems.

National Political and Social Framework

5. The World Bank's activities in the food sector are always undertaken in partnership with local authorities. Given the very much expanded range, depth and volume of interactions with domestic operating agencies, the Bank's concerns have broadened. Recent experience indicates that a series of factors has led developing country governments to attach a much higher priority to the food sector than previously. The heightened awareness, the *sine qua non* of the expansion in Bank activities, has led in some instances to dramatic improvements in government policies, especially in the allocation of larger proportion of total development investment to food needs. However, the availability of governmental support remains the key determinant in considering future levels of Bank activity. Governments must be willing to allocate the financial and institutional resources needed to meet food production and distribution objectives if Bank projects, ongoing or prospective, are to be effective. Most important of all, the food sector must be managed with adequate and equitable incentives for increased output by farmers (who are themselves often malnourished) without adversely affecting consumption by low income groups. Despite recent shifts in priorities, few governments have been willing to face directly the policy implications of trying to successfully resolve these twin objectives by effective or consistent interventions in the food sector.

Project Design and Implementation

6. Recent experience in the Bank gives considerable emphasis to management and organizational limitations on programs, as these affect both the rate at which additional lending can be effected and the performance of ongoing projects. The problem seems to be less one of individual skills and experience as such but rather the constraints implicit in the system, itself. Examples include: lack of recognition or reward for superior performance; slow-moving and cumbersome procedures; defective communication systems and coordinating mechanisms; limited scope for local initiative. Management problems are frequently linked with planning and budgeting problems, the effect of which is often to delay progress and hinder effective implementation. The Bank has recognized that institution-building is its most important task, and as a consequence has substantially increased support for training and technical assistance. Whether the level of support provided has kept pace with the increasing demands placed on managerial capacity is unclear. Trends in disbursements and project implementation are disquieting in this regard and it is clear that new efforts are called for on the part of the Bank, local agencies, governments and others who play vital roles in technical assistance, planning and training activities.

7. The paucity of field-tested technical packages to increase output in many chronic low productivity farming systems - low rainfall areas and areas

with poor or fragile soils, and in the tropical upland terrain more generally - is a serious constraint on project design. The Bank is increasing its support for national research programs (this is in fact the fastest growing subsector within the portfolio) and, at an international level, through its sponsorship of CGIAR. Much more needs to be done and a continuing active lending role and country dialogue will be pursued. In part, the currently limited impact of national research or extension efforts reflect the low priority accorded to them in the past. But in part they also reflect a wider and deep rooted set of management problems that affect the major implementing agencies responsible for agricultural development.

8. A financial and social problem of vital importance is to induce the farmer to adopt productivity augmenting technical changes such as greater use of cash inputs such as fertilizer and insecticide. All evidence suggests that the most important element in this endeavor has to do with pricing; even the smallest farmers being extremely sensitive to price signals. This is a complex problem with a major political dimension in many countries, since holding down food prices is commonly the major instrument of a cheap food policy which we have discussed above. From the narrower project perspective though, such policies frequently limit the scope for viable investments in the food producing sectors that might otherwise be attractive. They also detract from ongoing project performance when, as often occurs, the policy framework is changed in mid-stream.

Distribution Problems

9. The World Bank's approach towards food production and distribution objectives has been primarily through lending for: (a) rural development projects aimed at increased productivity for small farmers, and other low income rural households, mostly through the medium of agricultural production schemes with food as major output, and (b) other agricultural projects that result in higher volumes of food production. In addition, there have been a small number of specific nutrition projects, consumption components in other projects or modest technical support of national food planning. While a good deal has been achieved, as evidenced by the lending record, many long term conditions can be expected to limit progress in improving food distribution. In particular, direct action programs of the type deployed to help small farmers have limited application to the large class of landless laborers and tenants without secure rights to land. Bank assistance thus far directed towards these problems can largely be described as pilot and experimental in nature. There is, however, increasing recognition that, food (and other agricultural) projects tend to have considerable indirect impacts, largely as a result of incremental employment (at relatively low capital cost). Such employment is of the low skill type that is accessible to and meets the needs of the great mass of rural poor. Increasing efforts are being made through research and project design, to increase the impact of projects through employment effects, especially where the scope for direct action programs is limited.

The Future

10. A major determinant of future lending for food production and distribution is the performance of completed projects and experience with implementing ongoing projects at the country level. What have been described above as general problem areas are interpreted and evaluated in an individual country setting. Their significance at that level ultimately affects the volume of programmed assistance for food production and distribution interventions in future years. In almost a literal sense, the Bank/IDA project portfolio and forward program emerges as an aggregate of the projects included in the country lending program, the content of which is formulated in a dialogue with the borrower and, as required, other donors.

11. The projections of country lending objectives (in the context of a five-year forward program) are considerably firmer for the first one or two years than for the "outer" years. As currently estimated, in the immediate future a substantial dip (in real terms) from the exceptional levels of lending in FY78 for food production and distribution projects is expected, with recovery to about FY78 levels forecast for FY80. Beyond FY80, lending is projected to increase considerably. If realized, the overall five-year forward period FY79-83 would show significant real increase, with almost 50% higher real lending than in FY74-78 (which was itself almost double the volume of the earlier FY69-73 quinquennium). The increase is concentrated in the IDA eligible countries; the share of agriculture and rural development for IDA lending is expected to grow from 42% to 47%; for Bank lending, the share is projected at a constant 28%.

12. There is no way to evaluate the likelihood that the considerable volumes of assistance implicit in these projections (especially those beyond FY80) will be attained. Ultimately, the major conditioning factors will be overall country development experience and, more specifically, sector performance as indicated by governmental (and donor) support of policies calculated to improve producer incentives, organizational performance, and increasing volumes of domestic resources and skilled staff to food production and distribution programs. Three points which merit special emphasis are sector management, sector lending and project preparation.

13. Policy Dialogue and Sector Analysis: In many countries the analogy of a factory producing at only 50% of capacity has some application to the current status of food production systems. Making better use of existing investments, with comparatively modest incremental outlays to improve efficiency, may be more important than major new investment programs in raising food production and farmer incomes. This implies an important continuing role for donor agencies in sector analysis and dialogue as it relates to the policy framework. In the context of earlier discussions, a number of specific problems merit attention: ongoing programs of agricultural research; the status of staff training for the agricultural and related ministries; the management incentive structure; organizational systems and procedures (including finance and budgeting); the strengthening of project preparation; better monitoring/evaluation capability (oriented to tangible measurement of nutritional impact, yields and output); and the macro-economic and fiscal implications of expanding activities.

14. For the Bank, the growth in manpower committed to nonlending work in the agriculture and food sectors has already been substantial. Given the importance of food policy issues, we would expect these trends to continue. As noted earlier, a class of project with direct focus on institutional development and support has become more prominent, e.g., agricultural research and extension activities. It is expected that there would be a further strengthening and emphasis in this direction, with increasing attention to management training.

15. Sector Lending/Time Slice Financing. A notable feature in recent lending has been the emergence of an important class of projects with some of the characteristics of "sector lending," involving substantial support to the development programs of particular agencies in borrowing countries. In major programs, this can take the form of a 4 or 5-year time slice of a larger program, with tentative commitment of follow-up loans at later stages if performance is adequate. This type of lending technique relies on the prior experience of, and confidence in, particular implementing agencies in the countries concerned. A full and effective dialogue on major issues as they concern the particular program is another precondition. Where such projects relate to large countries and large programs the lending commitment is also considerable. There could well be opportunities for a substantial volume of new projects of this type, building on the large number of pioneer or first generation projects now under implementation. Without a substantial number of large projects, the feasibility of the forward lending projections would become very questionable. In the context of such projects, the issues of adequate local budgeting and staff for implementation becomes especially critical; quite large inputs of staff time through appraisal and implementation review may also be required, including staff in field postings.

16. Project Preparation for Innovative and Pioneer Projects. If sector lending of large project lending is a necessary component in an ambitious overall lending program, the continuation of a substantial emphasis on smaller, often highly innovative, projects would also remain very important. Substantial efforts have already been made in this direction. Considerable further efforts are needed in regard to a wide class of priority situations for which actions are thus far very limited (e.g. rainfed agriculture; off-farm and ancillary development; marketing and processing; and nutrition-specific interventions.) Experience shows, however, that such projects, particularly without a prior base of specific lending experience, often give rise to substantial implementation difficulties. Problems stemming from inadequate or incomplete project preparation due to technical, managerial and other constraints are particularly relevant to this class of project. Compensating for various deficiencies is an important part of imaginative preparation of pioneer projects but intractable limits to what can be accomplished remain. As activities extend to more marginal areas and difficult client groups these problems are expected to become more acute.

17. Recent discussions in the Bank related to these problems argue for broader recognition and more widespread use of a class of technical assistance or technical development projects, where resources in relatively small volume are made available for initial implementation and the further testing of systems

and approaches prior to more substantial operations. Such an approach offers advantages in the context of better design of projects; fuller understanding of the institutional context; avoidance of premature loan commitment; greater flexibility through the initial testing period; and success in assuring additional external support reaches operating units. Such project funding might also meet an important gap between the often necessarily small and limited purpose technical assistance grant or loan, and the full fledged investment project.

OFFICE MEMORANDUM

TO: Distribution List Below

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

SUBJECT: Report on OM&R Costs for Four Western USA Irrigation Districts

DATE: February 6, 1979

1. We have found it to be virtually impossible to find in published literature reliable cost information on well-maintained irrigation projects: data which can be used by Bank staff and by irrigation project managers in developing countries as a reference base from which to judge, in some manner, the resources needed to operate, maintain, and keep in good repair, relative modern irrigation systems. It is recognized that most projects are unique, and that cost parameters for one project may not be applicable to any other. Still, we know also that, where comparability can be identified by knowledgeable persons, selected cost parameters can be useful for many types of work and industry comparisons.

2. With these thoughts in mind, AGR/CPS last year retained the services of four California irrigation district managers and chief engineers under the leadership of Kenneth McSwain of Merced, California, to prepare a report on OM&R costs for their districts. The attached report is the result of their efforts, which is transmitted for your review and comments. We are especially interested in your views as to the value of having this report reproduced in greater quantity, with the specific identity of the districts perhaps being eliminated, for distribution to all interested irrigation staff and to selected LDC agencies and staff who might find it useful.

3. With Bank work being exclusively in LDCs, one could ask why California irrigation districts were studied at all. There were two principal reasons:

- (a) The districts are relatively well-managed, operated and maintained; and
- (b) OM&R and water distribution records are accurately recorded in considerable detail.

Identifying an LDC irrigation project which could satisfy these two important criteria appeared to be a near-impossible task. Also, the technology level of the districts studied is well within the capability of LDC projects. Furthermore, the size of delivery units, perhaps surprisingly, are not out of line with those in many LDC projects.

4. While each reader is free to analyze the data (presented in the main report in the English system of measurement units) as they think appropriate, the attached summary sheet in metric units reveals many interesting facts. Despite extremely high labor costs, costs per hectare and per m³ are quite reasonable. Other suggestions for meaningful parameters are solicited.

Attachment

FLHotes:rm

cc: Messrs. Tibor/Rodger, Finlinson, Gupta, O'Brien, Pranich, Baker, Tennent (ASP); Laeyendecker, Plusquellec, Niaz (EMP); Stevenin, Pradithavanij, Kuffner (EAP); Dumoulin, Martinod, Cornejo (LCP); Smith, Morton, Whitford (AEP); Meimaris, Des Bouvrie (WAP); Collins (AGR/CPS)

Selecta Operation, Maintenance and Repair Data

for Four Irrigation Districts in Western USA

1975 Data-Metric System

WBG ARCHIVES

(1) DISTRICT	(2) ANNUAL EXPENSE /1	(3) NOMINAL GROSS AREA	(4) TOTAL CROPPED AREA	(5) TOTAL CROPPED LESS DOUBLE CROPPED	(6) GROSS WATER DIVERSIONS	(7) WATER DELIVERED TO IRRIGATORS	(8) OM&R PER HECTARE CROPPED	(9) OM&R/m ³ DIVERTED, PUMPED OR PURCHASED	(10) OM&R/m ³ DELIVERED TO ALL USERS	(11) DELIVERY EFFICIENCY 100 x (7)÷(6)
	US\$	ha	ha	ha	m ³ x 10 ⁻⁶	m ³ x 10 ⁻⁶	US\$/ha	US\$/m ³	US\$/m ³	%
A	1,133,000	28,530	27,560	26,000	394.4	328.0	41.10	0.0029	0.0035	83.2
B	2,046,000	61,760	47,440	46,130	849.1 /2	533.1	43.15	0.0024	0.0038 /2	68.0
C	979,000	29,990	27,760	24,960	286.3 /3	173.7	35.25	0.0034	0.0056 /5	60.7 /6
D	1,011,000	41,230	35,080	35,080	330.6 /4	226.9	28.80	0.0031	0.0046 /5	68.6 /6

/1 From Page 6 of basic report.

/2 Of gross diversions, 65.8 m³ x 10⁶ were delivered to users other than irrigators.

/3 Privately-owned pumps delivered an additional 74 m³ x 10⁶ to meet crop requirements.

/4 Privately-owned pumps delivered an additional 97.5 m³ x 10⁶ to meet crop requirements.

/5 Water purchased by C cost approximately \$400,000 and by D about \$500,000; if these figures were deducted from Annual Expense (Column 2), the \$0.0056 for OM&R/m³ would be reduced to \$0.0033 for C and \$0.0023 for D. (See Column 13, which shows larger areas per delivery in those districts; hence, more privately-owned watercourses.)

/6 Some losses were used for groundwater recharge.

(1) DISTRICT	(12) AVG. DEPTH OF WATER/DEL IRRIGATED HA	(13) AVG. AREA SERVED/DELIVERY GATE	(14) TOTAL NUMBER OF PERSONNEL	(15) AVERAGE ANNUAL PERSONNEL COST PER EMPLOYEE	(16) PERSONNEL COSTS AS % OF COSTS OF PERSONNEL + MATERIALS + EQUIPMENT	(17) GROSS HA PER EMPLOYEE	(18) NO. OF DITCH- RIDERS	(19) AVG. AREA PER DITCH- RIDER	(20) AVG. NO. DELIVERY GATES PER DITCH- RIDER
	m	ha		\$/employee	%			ha	
A	1.19	14.4	58	12,450	92.2	492	27	2,420	67
B	1.12	11.2	135	10,790	85.4	457	24	4,800	172
C	.63 (.90) /7	25.0	29	12,795	79.3	1,034	7	7,450	143
D	.65 (.93) /7	49.9	23	13,045	66.7	1,793	5	17,540	140

/7 Figures () include privately-pumped water.

Table 1

REQUIREMENTS AND COSTS
FOR THE
OPERATION, MAINTENANCE AND REPAIR
OF
SELECTED IRRIGATION SYSTEMS
IN THE
STATE OF CALIFORNIA
A REPORT
prepared by
Kenneth R. McSwain & Associates
Merced, California
for
THE WORLD BANK
Washington, D.C.

December, 1978

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PREFACE

The operation, maintenance and repair of irrigation systems in which the World Bank is involved in areas throughout the world have been problems as to equipment, organization and cost. Some evaluation of these data is needed for fiscal assessment of new projects as well as those requiring rehabilitation.

Since irrigation works have existed in California for over a century, with public ownership of many since the 1880's, and have considerable (even if not necessarily uniform) details, officials of the Bank have requested this report in order to establish some uniformity, or at least parameters, for existing and ongoing projects; this is in conformity with the Terms of Reference sent us in May, 1978, and a letter agreement executed on June 16, 1978.

The report was prepared during the period September through December, 1978, by;

Kenneth R. McSwain, Civil Engineer (formerly Chief Engineer and Manager of the Merced Irrigation District, Merced).

Samuel C. Fortier, Engineer - Manager of the Delano-Earlimart Irrigation District, Delano.

Robert L. Lanning, Engineer - Manager of the Lindmore Irrigation District, Lindsay.

Noel A. Negley, Chief Engineer/General Manager of the South San Joaquin Irrigation District, Manteca.

The actual assembly and compilation of data were done by Kenneth R. McSwain.

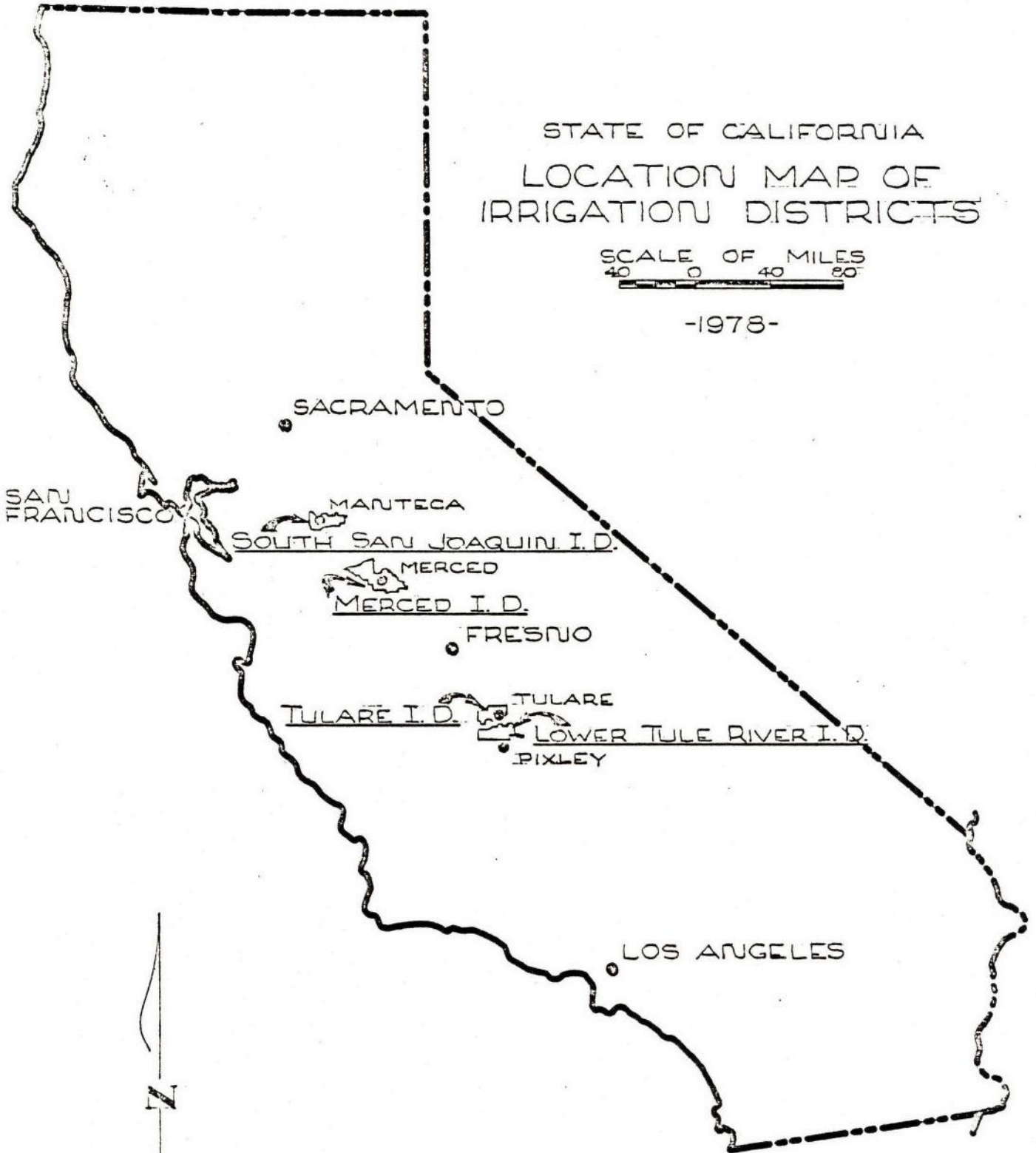
The following were resource persons during the data gathering period:

Reuben E. Schmidt, Chief Engineer, Merced Irrigation District; Nash Mendoza, Controller, Merced Irrigation District; Neal Campbell, Construction Superintendent, Merced Irrigation District; David Zack, Engineer - Manager, Tulare Irrigation District; Harold Garner, Assessor - Collector - Treasurer, Tulare Irrigation District; Roger Robb, Engineer - Manager, Lower Tule Irrigation District; Ralph Offut, Superintendent, Lower Tule Irrigation District; Jessie Drane, Secretary - Treasurer - Office Manager, Lower Tule Irrigation District; Gerard Fondse, Office Manager, South San Joaquin Irrigation District.

STATE OF CALIFORNIA
LOCATION MAP OF
IRRIGATION DISTRICTS

SCALE OF MILES
40 0 40 80

-1978-



THE WORLD BANK

REQUIREMENTS AND COSTS FOR THE OPERATION, MAINTENANCE
AND REPAIR OF SELECTED IRRIGATION SYSTEMS IN THE
STATE OF CALIFORNIA

Introduction Four districts, all located in the San Joaquin Valley of California, were selected for the study; they vary in size from 62,400 irrigated acres to 115,336 acres (1975 figures). Two, Merced and South San Joaquin, obtain their total water supplies from their own storage reservoirs, while the remaining, Lower Tule and Tulare, purchase water from the U.S. Bureau of Reclamation under utility-type contracts, depend upon ground water extraction by privately owned deep well pumps and also have some stream entitlements.

Following are the data, with some expansion and minor corrections, contained in the Inception Report dated July 21, 1978.

I. SOUTH SAN JOAQUIN IRRIGATION DISTRICT

1. Location: In southern San Joaquin County surrounding the City of Manteca.
2. Areal Extent: 71,328 acres Organized: 1909.
3. Type System: Open canals and pipelines.
4. Miles Open Canal: 60
5. Principal Crops: Cereals, forages, vegetables, fruits, nuts.
6. Climate: Semi-arid with average precipitation 12 inches.
7. Water Supply: From Stanislaus River and deep wells.

II. MERCED IRRIGATION DISTRICT

1. Location: In eastern Merced County surrounding the City of Merced.
2. Areal Extent: 154,394 acres Organized: 1919.
3. Type System: Open canals and pipelines.
4. Miles Open Canal: 647.
5. Principal Crops: Row crops, orchard, vineyard, pasture, rice, alfalfa.
6. Climate: Semi-arid with average precipitation 11 inches.
7. Water Supply: From Merced River and deep wells.

III. TULARE IRRIGATION DISTRICT

1. Location: In Tulare County surrounding the City of Tulare.
2. Areal Extent: 74,968 acres Organized: 1889.
3. Type of System: Open canals and pipelines.

4. Miles Open Canal: 257.
5. Principal Crops: Cotton, grain, alfalfa, vineyard, row crops.
6. Climate: Semi-arid with average precipitation 8 inches.
7. Water supply: From Kaweah River, the U.S. Bureau of Reclamation and deep well pumps.

IV. LOWER TULE IRRIGATION DISTRICT

1. Location: In Tulare County between Pixley and Tipton.
2. Areal Extent: 103,086 acres Organized: 1950.
3. Type System: Open canals.
4. Miles Open Canal: 204.
5. Principal Crops: Cotton, alfalfa, row crops.
6. Climate: Semi-arid with average precipitation 7 inches.
7. Water Supply: From Tule River, the U.S. Bureau of Reclamation and deep well pumps.

As 1976 and 1977 were drought years in California and 1978 is a far above normal water year and its data are not presently available, the year 1975 has been used as a basis for water, crop and financial items in this report; overall costs have escalated about 25% since that time.

Each district has the same general type of organization, with voter selected directors, treasurers and assessor-collectors; the boards of directors convene at stated intervals (often once a week) and establish policies, act on fiscal matters, consider contracts and agreements and any other subjects set forth under the Water Code of the State of California. The boards appoint secretaries, managers and/or engineers, who serve at the board's pleasure, and take care of the day-to-day operations of the districts. Officials have considerable latitude in decision-making processes as long as they conform to the Water Code; there are some constraints (i.e., irrigated acreage limitations and availability of water) imposed upon the entities obtaining their water through the Bureau of Reclamation. Variations in O.M. & R. figures between the subject districts often are the results of availability of water, climate conditions, crop yields and prices, district financing policies and, in some cases, local politics.

Finances For a more complete understanding of the districts' operations, as suggested in Section 2.1 of the Terms of Reference, the figures below represent the 1975 annual revenues and expenses for the districts. Applicable data were extracted from the annual reports for the year; those reports contain extraneous items that have no bearing on the problem we are covering and would probably be confusing. (Examples: Merced's report contains revenues and expenses for hydro-electric and recreation operations and South San Joaquin lists its hydro plants data.) For these summaries figures have been rounded to thousands of dollars.

SOUTH SAN JOAQUIN (71,328 acres)	Total Assets for Irrigation System	\$13,735,000
<u>Revenues</u>		
Taxes & Assessments	\$777,000	
Water Sales	0	
Other (1)	<u>270,000</u>	\$1,047,000
<u>Expenses</u>		
Administration & Clerical	\$230,000	
Water Development(2)	171,000	
Transmission & Distribution	344,000	
Maintenance & Repair	258,000	
Supervision & Engineering	130,000	
Other	<u>0</u>	\$1,133,000
Net Revenue		<u>\$(86,000)</u>

(1) Includes work done for others in connection with the irrigation system.

(2) Includes pumping costs.

MERCED (154,394 acres)	Total Assets for Irrigation System	\$23,213,000
<u>Revenues</u>		
Taxes & Assessments	\$2,022,000	
Water Sales	147,000	
Other (1)	<u>44,000</u>	\$2,213,000
<u>Expenses</u>		
Administration & Clerical	\$ 189,000	
Water Development(2)	235,000	
Transmission & Distribution	301,000	
Maintenance & Repair	711,000	
Supervision & Engineering	106,000	
Other (3)	<u>504,000</u>	\$2,046,000
Net Revenue		<u>\$ 167,000</u>

(1) Includes property rentals, interest on investments.

(2) Includes pumping costs.

(3) Includes insurance, employee benefits, garage, warehouse.

TULARE
(74,968 acres)

Total Assets for
Irrigation System \$2,250,000

Revenues

Taxes & Assessments	\$ 474,000	
Water Sales	536,000	
Other	80,000	\$1,090,000

Expenses

Administration & Clerical	\$ 70,000	
Water Development	423,000	
Transmission & Distribution	106,000	
Maintenance & Repair	217,000	
Supervision & Engineering	36,000	
Other	127,000	\$ 979,000

Net Revenue

\$ 111,000

LOWER TULE
(103,086)

Total Assets for
Irrigation System \$2,295,000

Revenues

Taxes & Assessments	\$ 419,000	
Water Sales	736,000	
Other	75,000	\$1,230,000

Expenses

Administration & Clerical	\$ 119,000	
Water Development	531,000	
Transmission & Distribution	107,000	
Maintenance & Repair	176,000	
Supervision & Engineering	30,000	
Other	48,000	\$1,011,000

Net Revenue

\$ 219,000

Accuracy of Data As the subject districts are publicly owned and are not subject to Federal, State or local taxes, their financial reports are seldom detailed, although they are checked by independent auditors as to their accuracy and the integrity of the various accounts. A number of years ago the State Controller attempted to set up a "uniform system of accounts" for public irrigation entities but there appears to be a great deal of diversity in the manner different financial departments handle them. As a consequence, some of the figures contained herein are necessarily the "best available" estimates by those most qualified for such judgments. Some figures, for example, breakdowns of heavy equipment, are simply not available; in other cases not each district has all the desired information. An attempt, however, has been made to evaluate some features, both fiscal and physical, that may help to accomplish the purposes of this report.

Some apparent inconsistencies in comparing annual breakdown of annual expenses (Section 3.0) and those under analyses of work (Section 3.1) are explained by the inclusion of portions of "administration and clerical" and "other" items in the latter's details. Data under 3.0 is for general information and the most weight should be given to those under 3.1.

SECTION 3.0

A. Overall breakdown of annual expenses.

<u>Item</u>	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Personnel(1)	\$722,000	\$1,457,000	\$371,000	\$300,000
Materials	251,000	204,000	80,000	53,000
Equipment	10,000	46,000	17,000	91,000
Energy	49,000	188,000	0	0
Other	101,000	151,000	511,000(2)	567,000(2)
Totals	<u>\$1,133,000</u>	<u>\$2,046,000</u>	<u>\$979,000</u>	<u>\$1,011,000</u>

(1) Includes cost of fringe benefits.

(2) Includes cost of purchased water.

<u>Item</u>	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Administration & Clerical	\$230,000	\$189,000	\$ 70,000	\$119,000
Water Development	171,000(1)	235,000(1)	423,000(2)	531,000(2)
Transmission & Distribution	344,000	301,000	106,000	107,000
Maintenance & Repair	258,000	711,000	217,000	176,000
Supervision & Engineering	130,000	106,000	36,000	30,000
Other	0	504,000	127,000	48,000
Totals(3)	<u>\$1,133,000</u>	<u>\$2,046,000</u>	<u>\$979,000</u>	<u>\$1,011,000</u>

(1) Includes pumping costs.

(2) Includes costs of purchased water.

(3) No new construction in foregoing items.

B. Overall breakdown of annual revenues.

<u>Item</u>	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Taxes	\$780,000	\$2,022,000	\$474,000	\$419,000
Water Sales	0	147,000	536,000	736,000
Other	267,000	44,000	80,000	75,000
Totals	<u>\$1,047,000</u>	<u>\$2,213,000</u>	<u>\$1,090,000</u>	<u>\$1,230,000</u>

C. Personnel

SOUTH SAN JOAQUIN

<u>Category</u>	<u>Number Employed</u>	<u>Basic Cost</u>	<u>Fringe Benefit</u>	<u>Total</u>
Professional	0	\$ 0	\$ 0	\$ 0
Technical	2	18,000	4,000	22,000
Clerical	6	40,000	9,000	49,000
Skilled Labor	36	385,000	89,000	474,000
Unskilled Labor	10	84,000	19,000	103,000
Management	4	60,000	14,000	74,000
Totals	<u>58</u>	<u>\$587,000</u>	<u>\$135,000</u>	<u>\$722,000</u>

MERCED

Professional	2	\$ 6,000	\$ 0	\$ 6,000
Technical	9	99,000	21,000	120,000
Clerical	13	125,000	26,000	151,000
Skilled Labor	40	439,000	92,000	531,000
Unskilled Labor	68	459,000	97,000	556,000
Management	3	77,000	16,000	93,000
Totals	<u>135</u>	<u>\$1,205,000</u>	<u>\$252,000</u>	<u>\$1,457,000</u>

TULARE

<u>Category</u>	<u>Number Employed</u>	<u>Basic Cost</u>	<u>Fringe Benefits</u>	<u>Total</u>
Professional	1	\$ 27,000	\$ 5,000	\$ 32,000
Technical	2	18,000	4,000	22,000
Clerical	2	15,000	3,000	18,000
Skilled Labor	16	159,000	33,000	192,000
Unskilled Labor	5	26,000	5,000	31,000
Management	3	63,000	13,000	76,000
Totals	<u>29</u>	<u>\$308,000</u>	<u>\$ 63,000</u>	<u>\$371,000</u>

LOWER TULE

Professional	3	\$ 13,000	\$ 0	\$ 13,000
Technical	1	11,000	3,000	14,000
Clerical	1	10,000	2,000	12,000
Skilled Labor	6	67,000	17,000	84,000
Unskilled Labor	9	80,000	22,000	102,000
Management	3	59,000	16,000	75,000
Totals	<u>23</u>	<u>\$240,000</u>	<u>\$ 60,000</u>	<u>\$300,000</u>

Fringe benefits to employees are provided by each district. Health and hospitalization, retirement, term life insurance, paid vacations and sick leave costs are shared between the districts and their employees, with varying degrees as to the percentage of participation and lengths of service. The figures above reflect only those costs to the districts and do not include the amounts paid by employees.

D. Equipment.

SOUTH SAN JOAQUIN

Highway - 34

5 - 2 ton flatbed trucks
 3 dump trucks
 2 sedans
 21 - 1/2 ton pickup trucks
 2 heavy equipment transports
 1 water truck - 3,000 gallon

Off Highway - 8

2 dragline excavators
 1 crawler tractor with front loader
 2 wheel tractors with front loaders
 1 crawler tractor with dozer and backhoe
 1 motor grader
 1 fork lift, 6,000 pound capacity

Miscellaneous

24 separate trailer-carried or mounted items;
 pumps, air compressors, cement mixers, etc.

MERCED

Highway - 97

97 vehicles, including 1/2 ton pickups to c.y. dump trucks, flat bed trucks, tractors with low bed trailers and sedans.

Overall costs for the 97, with total annual mileage of 1,047,700:

Fuel	\$ 45,000	\$0.043/mile	37%
M. & R.	38,700	.037/mile	31%
Depreciation	35,700	.034/mile	29%
Insurance	3,700	.003/mile	3%
Totals	\$123,100	\$0.117/mile	100%

Off Highway - 18

- 4 dragline excavators, 3/4 c.y.
- 2 gradall excavators, 1/2 c.y.
- 1 crawler tractor with dozer, D7
- 3 crawler tractors with dozers, D4's
- 1 motor grader
- 7 wheel tractors with mowers or loaders

Miscellaneous

48 other small items such as concrete mixers, spray rigs, compressors, trailers, generators, pumps, chain saws, water tanks, etc.

Practically no firm data are obtainable on heavy equipment costs except for the following (Merced), which have been estimated by that districts personnel. Figures are based upon approximately 1800 operating hours per year and depreciation estimated from the average first costs and ages of the units.

Estimated Hourly Cost

<u>Unit</u>	<u>Fuel</u>	<u>M. & R.</u>	<u>Depreciation</u>	<u>Insurance</u>	<u>Total</u>
Dragline, 3/4 c.y.	\$2.50	\$5.50	\$3.50	\$0.50	\$12.00
Gradall, 1/2 c.y.	2.00	4.50	5.00	.50	12.00
Tractor, D7	3.00	3.10	3.50	.40	10.00
Tractor, D4	1.50	3.20	2.00	.30	7.00
Wheel tractor	1.00	1.00	.80	.20	3.00

TULARE

Highway - 34

- 8 flat bed trucks
- 4 dump trucks
- 2 sedans
- 17 - 1/2 ton pickup trucks
- 3 heavy equipment transports

Off Highway - 12

- 3 dragline excavators
- 3 motor grader
- 1 crawler tractor, dozer
- 2 bank slopers
- 1 wheel tractor, loader
- 2 wheel tractors, backhoe and mower

Miscellaneous

17 other items including pumps, cement mixers, compressors, sprayers, water tanks, discs, trailers, roller.

LOWER TULE

Highway (Light) - 11 First Cost \$40,511

2 sedans
9 - 1/2 ton pickup trucks

Total Annual Cost (no mileage available) for above

	Cost	% of Total
Fuel	\$2,000	11
M. & R.	7,600	40
Depreciation	8,100	43
Insurance	1,100	6
Totals	<u>\$18,800</u>	<u>100</u>

Off Highway & Heavy - 27 First Cost \$283,753

2 front end loaders
2 wheel tractors
1 crane, 40 ton
1 dragline excavator, 1/2 c.y.
2 motor graders
1 crawler tractor, D8
1 crawler tractor, D7
2 wheel tractor backhoes
2 bank slopers
1 mobile canal pump
2 portable pumps
3 dump trucks
2 flat bed trucks
2 truck mounted spray rigs
2 semi flat bed trucks (move heavy equipment)
1 trap wagon

Total Annual Cost of Above

	Cost	% of Total
Fuel	\$23,900	28
M. & R.	34,900	40
Depreciation	26,800	31
Insurance	1,200	1
Totals	<u>\$86,800</u>	<u>100</u>

In general, the information on equipment is lacking as to detail for reasons that were explained under Accuracy of Data on page 5.

E. Statistics and Descriptions The California location map is in the front of this report, with the separate district maps in the back.

AREAS

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Gross	71,328	154,394	74,968	103,086
Irrigable	65,364	131,953	62,400	93,236
Irrigated (1975)	65,008	115,336	62,400	87,690

CLIMATE, SOILS, MAJOR CROPS

The South San Joaquin District climate is semi-arid with an average rainfall of 12 inches, a frost free growing season ranging from 250 days to 280 days, maximum temperatures from 110 degrees Fahrenheit to 114 degrees Fahrenheit, minimums from 15 degrees Fahrenheit to 18 degrees Fahrenheit; mean temperature is 60 degrees Fahrenheit.

The soils range from sands, coarse and fine, through loams of several types, and silts to adobes. In common with most of the Central Valley lands, the soils were probably deposited under the waters of the ancient lake which occupied the valley during the Pleistocene period. They were brought down by the floods of the Stanislaus River from the disintegrated granite quartz and porphyries of the high Sierra to the east. After the waters of the lake receded, the soils were modified by admixtures of matter derived from weathering of sedimentary formation of the eastern hills.

Crops during 1975 were as follows:

	<u>Acres</u>	<u>% of Total Area</u>
Cereals	2,800	4
Forages (alfalfa, pasture, ensilage)	19,500	28
Vegetable and field (melons, tomatoes)	2,100	3
Fruit (grapes, peaches, olives)	13,900	20
Nuts (almonds, walnuts)	30,600	45
Totals	68,900	100
Double cropped	- 3,900	
Net	65,000	

At the Merced District climate is semi-arid with mean annual precipitation of 11.74 inches; 95% occurs from October through April. Snow is extremely rare. The maximum temperature average from May through October (1975, a typical year) was 102 degrees Fahrenheit with a high of 104 degrees; the minimum average for the period was 48 degrees; with a low of 37 degrees. The winter low was 22 degrees in January. Humidity varies from a high of 83% (January fog) to 43% in August.

Soils consist of adobe to the far east (3%), clayey loam in the central part (35%), heavy clay to the south (17%), moderately sandy soil to the west (37%) and very light and permeable sand to the far west and south west (8%).

Major crops (1975) were:

	<u>Acres</u>	<u>% of Total Area</u>
Field (alfalfa, corn, grain, rice, others)	42,600	36
Irrigated pasture	36,300	31
Fruit (peaches, vineyard, figs)	15,900	13
Nuts (almonds, walnuts)	22,400	19
Miscellaneous	1,400	1
Totals	118,600	100
Double cropped	- 3,300	
Net	115,300	

The Tulare District climate is semi-arid with mild winters and hot, dry summers. Precipitation averages 8 inches per year.

The topography is generally smooth with a gentle slope to the westward. About 80% of the soils are affected by varying concentrations of alkali. Land classification for the gross acreage indicate 22% with no limitations in suitability for irrigation, 44% with slight to moderate limitations, 24% with moderate to severe limitations, 9% with severe, and 1% unsuitable for irrigation.

Principal crops for 1975 were:

	<u>Acres</u>	<u>% of Total Area</u>
Irrigated grain and corn	17,800	26
Alfalfa	15,700	23
Cotton	27,300	39
Vineyard	1,700	2
Orchard (deciduous and nuts)	1,900	3
Miscellaneous	5,000	7
Totals	69,400	100
Double cropped	- 7,000	
Net	62,400	

The Lower Tule District climate is semi-arid with mean annual precipitation approximately 7 inches. The average irrigation season lasts 305 days, during which the average maximum temperature is 81 degrees and the average minimum 51 degrees. The highest monthly average on record during the irrigation season is 99.6 degrees. During the irrigation season the average wind is 6.6 m.p.h., relative humidity is 52.2% and the percentage of possible sunshine is 89.3.

Most of the soils are made up of the alluvial fan deposited by overflow of the Tule River over the ages. Early soil surveys taken when the district was formed showed about 20% of the land in the westerly part of the area was affected by alkali; through irrigation and land improvements this has been reduced to 7%.

Major crops (1975) were:

	<u>Acres</u>	<u>% of Total Area</u>
Irrigated pasture	4,300	5
Grapes	3,300	4
Fruit trees	1,900	2
Nut trees	3,000	3
Cotton	18,100	21
Cereals	34,500	39
Miscellaneous	22,600	26
Totals	<u>87,700</u>	<u>100</u>

WATER USED

	<u>South San Joaquin</u>		<u>Acre Feet Merced</u>		<u>Tulare</u>		<u>Lower Tule</u>	
Diverted, purchased and pumped	319,600	100%	688,100	100%	232,000	100%	268,100	100%
Delivered to irrigators	265,800	83%	432,000	63%	140,800	61%	183,900	69%
Delivered under agreements	0	0	26,400	4%	0		0	0
Surplus sold	0	0	26,900	4%	0		0	0
Operational Spill			92,700	13%	6,800	3%	0	0
Losses	<u>53,800</u>	<u>(1)17%</u>	<u>110,100</u>	<u>16%</u>	<u>84,400</u>	<u>(2)36%</u>	<u>84,200</u>	<u>(2)31%</u>
Totals	319,600	100%	688,100	100%	232,000	100%	268,100	100%

(1) Includes operational spill.

(2) Partially used for ground water recharge

Note: In order to obtain a full irrigation supply, privately owned pumps delivered about 60,000 acre feet at Tulare and 79,000 acre feet at Lower Tule from deep wells within those districts.

STATISTICS

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Gross Acreage	71,328	154,394	74,968	103,086
Irrigable acreage	65,364	131,953	68,125	93,236
Irrigated in 1975	65,008	115,336	62,400	87,690
Total miles of canal	60	723	257	204
Miles concrete lined	40	139	0	0
Miles in pipeline	290	76	35	0
Miles pipeline from wells	0	31	0	0
Number drainage wells	42	127	0	0
Number irrigation wells	0	107	0	0
Number check and drops	1,560	1,501	900	400
Number delivery gates	1,800	4,116	1,000	703
Number bridges, culverts	390	461	840	103
Number hydrologic stations	5	32	13	2

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Farm irrigation methods	Border, furrow, sprinkler	Border, furrow, sprinkler	Border & furrow	Border & furrow
Farm range size	1 to 911 acres	1 to 1,800 acres	2 to 2,162 acres	1 to 160 acres
Average size of irrigated parcel	9 acres	33 acres	41 acres	132 acres
Water applied to irrigated areas by districts-1975	4.08 feet	3.75 feet	2.26 feet	2.10 feet

SECTION 3.1

Analyses of Types of WorkA. Watermaster Service.

SOUTH SAN JOAQUIN

Services are provided by 27 ditchtenders, each taking care of an average of 2,420 acres. Each one maintains contact with individual farmers, advising them as to when water will be available. Additionally, the ditchtender keeps records of deliveries, crops grown and generally patrols the area. They are provided a 1/2 ton pickup truck with a radio for communications with the office and other ditchtenders. The District system does not require precise metering; however, the ditchtenders do utilize weirs and flow meters to measure flow rates.

The cost of this service, including supervision and overhead, was \$344,000.

MERCED

The average area served by each of 24 ditchtenders is 4,800 acres - the range is from 3,500 acres to 12,700 acres and each one has an average of 145 parcels in his division. They are provided 1/2 ton pickup trucks; communication with the farmers and office is by personal contact or telephone.

Quantities to irrigators are measured by taking the heads and openings on submerged metal slide gates and canal discharges are from weir and submerged orifice tables. Water receipts are signed by farmers at the completion of every irrigation.

The total cost (1975), including supervision and overhead, was \$301,200.

TULARE

Each of the 7 ditchtenders serves an average of 8,910 acres with a range of 7,450 acres to 14,240 acres; the average number of parcels is 140 per man. They are furnished 1/2 ton pickups with radios for contact at the District office.

Flows to irrigators are measured by recording meters or Armco meter gates. Canal discharges are measured through Parshall flumes, meter gates or rated weirs.

The total 1975 cost was \$105,500, including supervision and overhead.

LOWER TULE

The Lower Tule employs 5 ditchtenders, each of whom serves an average of 17,540 acres and has an average of 140 turn-outs.

They are provided radio equipped pickups and take orders for water from farmers by telephone or personal contact. Water measurements are through meter gates to irrigators and from weirs in canals.

The 1975 cost, including supervision and overhead, was \$106,900.

B. Maintenance of Unlined Canals

SOUTH SAN JOAQUIN

The District maintains only one unlined canal, 20 miles in length, it being the main leading into and through the District. Its capacity is 1,000 c.f.s. for the first 8 miles, after which it gradually diminishes to 400 c.f.s. for the next 12 miles.

The estimated annual maintenance cost is \$15,000, or \$750 per mile.

MERCED

Capacities vary from 2,000 c.f.s. (Main Canal) to 15 c.f.s. on small laterals. Maintenance includes berm removal, bank repairs, clearing submersed weeds, willow and bamboo control, control of noxious weeds on banks.

Total cost, including supervision and overhead, was \$390,700 or \$769 per mile for 508 miles.

TULARE

The Tulare District maintains 257 miles of unlined canal; the work includes chemical weed control, re-shaping banks, silt removal and rip-rapping.

The total cost, including supervision and overhead for 1975 was \$241,700, or \$940 per mile.

LOWER TULE

Capacities are from 200 to 650 c.f.s. on 4 main canals. Maintenance includes re-shaping banks and an extensive weed control program.

The total cost, including supervision and overhead (1975) was \$213,276, or \$1,045 per mile for its 204 miles.

C. Maintenance of Lined Canals

SOUTH SAN JOAQUIN

In the South San Joaquin I.D. the capacities range from 30 to 165 c.f.s. Maintenance includes rodent eradication, silt removal, weed control, concrete repairs.

The cost including supervision and overhead, is (1975) \$20,000, or \$500 per mile for 40 miles.

MERCED

Capacities vary from 15 to 185 c.f.c. Maintenance includes repairs to cracks, erosion, spalling, removal of silt, clearing of submersed weeds, control of noxious bank weeds, willows and bamboo.

Total 1975 cost, including supervision and overhead, was \$91,600 or \$659 per mile for 139 miles.

TULARE

No lined canals.

LOWER TULE

No lined canals.

D. Maintenance of Pipelines (all concrete)

SOUTH SAN JOAQUIN

The distribution system of the District is principally composed of concrete pipe, ranging from 30 inch to 48 inch diameters. Other than at highway or railroad crossings the pipe is of the non-reinforced, cast-in-place type; it is designed for heads not to exceed 10 feet.

Annual maintenance costs, including supervision and overhead (1975) was \$180,000 or \$620 per mile for 290 miles.

MERCED

Diameters vary from 12 inches to 54 inches, with most sizes 30 inches or greater being unreinforced, low-head monolithic. Work consists of repairing leaks to replacing joints (on precast), where necessary.

The total cost, including supervision and overhead, for 1975 was \$618 per mile for 107 miles, or \$66,100.

TULARE

Diameters are from 16 inches to 48 inches and consist of precast and cast in place concrete pipe. Maintenance consists of small leak repairs.

The cost, including supervision and overhead, was \$15,500 or \$443 per mile for 35 miles of line.

LOWER TULE

No pipelines.

E. Pump Maintenance

SOUTH SAN JOAQUIN

South San Joaquin operates 42 pumps; all are hollow shaft turbines installed in deep wells and powered by electric motors. Yields vary from 1,100 to 3,200 g.p.m. Their principal use is for drainage purposes, although the discharges are returned to the District's system and used for irrigation.

No breakdown between maintenance and repair and operation is available; the estimated total cost (1975), including supervision and overhead, was \$1,000 per unit, or \$42,000.

MERCED

The Merced I.D. operates 234 deep well turbine pumps of which 127 are for drainage and 107 are for irrigation; the latter are only as needed in the event of gravity water shortages. In all cases about 95% of the pumped water is utilized in the irrigation system. Electric motor sizes are from 10 horsepower to 75 horsepower and yields vary from about 400 g.p.m. to 3,000 g.p.m.

The M.&R. cost per unit was \$298 and the operation (servicing, oiling, etc.) \$68, or a total of \$366. Annual cost, including supervision and overhead, was (1975) \$85,600.

TULARE

No pumps.

LOWER TULE

No pumps.

F. Costs of District Shop Operations and Outside Repairs

SOUTH SAN JOAQUIN

The District maintains a shop operation for the repair of vehicles and equipment. Other than machine shop type work, all repairs are done in the shop.

Cost of the shop operation is \$66,000 and outside work is \$10,000 (1975).

MERCED

Most of the Merced shop expense is for labor on automotive equipment and parts for all types of equipment, including off-highway units. Most of the labor for heavy equipment repair is done by its operators and not necessarily charged to the shop. As the shop employees can do most welding and machine work, only about \$7,800 of the 1975 total of \$165,000 was outside work.

TULARE

The Tulare District also maintains a shop that takes care of practically all its equipment requirements. Its total annual cost was \$62,800. How much was outside work is not available.

LOWER TULE

Exact figures for shop operations are not available for Lower Tule but is estimated to be a total of \$72,000, including outside work, which is comparatively minor as to amount.

G. Maintenance of Canals with Different Type Linings

Two districts have both lined and unlined canals, but the only types of lining is concrete. The Tulare and Lower Tules districts have only unlined canals.

SECTION 3.2

Costs for Special Work

A. Watermaster service

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Labor	\$230,000	\$177,500	\$ 49,000	\$ 59,000
Material	10,000	12,000	0	700
Equipment(1)	40,000	48,000	21,000	15,300
Supervision	34,000	29,000	10,500	12,200
Overhead	30,000	34,700	25,000	19,700
Totals	\$344,000	\$301,200	\$105,500	\$106,900
Average size of parcels-acres	9	33	41	132
Total acreage irrigated	65,008	115,336	62,400	87,690
Number of ditchtenders	27	24	7	5
Cost/irrigated acre(2)	\$5.29	\$2.61	\$1.69	\$1.22

(1) Principally transport

(2) Includes area double cropped

B. Maintenance of Unlined Canals - Cost/Mile.

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Labor	\$500	\$209	\$410	\$345
Material	50	81	245	126
Equipment	125	335	95	338
Supervision	25	57	40	47
Overhead	50	87	150	188
Totals	\$750	\$769	\$940	\$1,044
Miles of canal	20	508	257	204
Capacity ranges c.f.s.	400-1,000	15-2,000	50-450	200-650

C. Maintenance of Lined Canals-Cost/Mile.

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Labor	\$300	\$276		
Material	75	70		
Equipment	50	180		
Supervision	50	55		
Overhead	25	78		
Totals	\$500	\$659		
Miles of canal	40	139	None	None
Capacity ranges-c.f.s.	30-165	15-185		

D. Maintenance of Pipelines-Cost/Mile

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Labor	\$285	\$349	\$157	
Material	140	45	80	
Equipment	120	103	66	
Supervision	50	50	40	
Overhead	25	71	100	
Totals	\$620	\$618	\$443	
Miles pipeline	290	107	35	None
Diameter ranges-inches	30-48	12-54	16-48	

E. Pump Maintenance-Cost/Unit

	<u>South San Joaquin</u>	<u>Merced</u>		<u>Tulare</u>	<u>Lower Tule</u>	
		<u>M. & R. + Operation = Total</u>				
		<u>\$115</u>	<u>\$ 38</u>	<u>\$153</u>		
Labor	\$ 600					
Materials	125	114	3	117		
Equipment	100	12	13	25		
Supervision	100	23	6	29		
Overhead	75	34	8	42		
Totals	\$1,000	\$298	\$ 68	\$366		
Number of units	42		234		None	None

F. Shop Operations

	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Labor	\$36,000	\$ 70,500	\$27,700	
Materials	26,000	71,800	17,000	
Equipment	7,000	4,500	2,500	
Supervision	4,000	7,300	12,200	
Overhead	3,000	10,900	3,400	No breakdown
Totals	\$76,000	\$165,000	\$62,800	\$72,000
Number of major units	42	115	46	38

COMMENTS

Types of Conduits. The figures in this report verify the suggestion (made in Section 1.2 of the Terms of Reference) that canal maintenance costs are far from over with the installation of concrete lining. At least three points are interesting in this respect. First, consideration should be given to the effect upon drought sensitive crops when lining repairs can take more time than those for unlined canals. Second, where canals are small and banks are narrow, the only method of silt removal may be by hand labor with its attendant high costs. And third, (and this applies to the Tulare and Lower Tule Districts) unlined canals have been constructed as tools for ground water recharge, so in the long term the system may be operated with the conjunctive use of stream diverted and ground water supplies.

The annual cost of pipeline maintenance is shown to be surprisingly high for the four districts. In their cases either precast, with joints and mortar bands every three feet, or monolithic unreinforced pipe have been used - probably owing to their low first costs. Consideration should be given to the use of centrifugally spun, rubber gasket pipe in eight to twenty foot lengths or to asbestos - cement pipe, in the design of any new system or major replacements.

Manual and Mechanical Operations. The four California districts have mechanized as much of their operations as possible within their separate financial constraints; even with the ever increasing first costs of machinery, its improved efficiency has and new innovations in design have more than offset hand labor expense. Needless to say, in some countries with which the World Bank deals, the use of more manpower would have its advantages.

Unit M. & R. and Operation Costs. It may be noted that under Section 3.2 A, Watermaster Service, that there is some consistency in the costs to various districts and that the ones who have the smallest average sized parcels cost the most per acre served. It is also apparent that in the Tulare and Lower Tule cases, those districts only deliver to larger portions of land and leave the maintenance and operation of miles of small service laterals, ditches (and perhaps pipelines) to individual or groups of water users. (See "miles of canal" notes in Section 3.2 B. & C.) Any attempt, to evaluate canal M.R. & O. to acreage is doomed to failure unless there is a definite fixed figure placed upon the size parcels to be served by district facilities.

Operating Criteria of the California Districts. The objective of each district organization is to provide water service within two to three days of a grower's request; crop, soil and climate conditions at different periods are governing factors when it comes to urgency to deliveries or repairs to outages in the conduit system. Each district has found it essential, from a service standpoint alone, to maintain its own shops for equipment

repair; dependency on regular commercial establishments, except for very small (one or two men operation) districts, is practically impossible because so many emergencies occur on week-ends, nights and holidays when privately owned garages and repair shops are shut down. An added (and quite substantial) benefit is the savings made by quantity purchases of fuel, tires, parts, etc. Shop labor costs are also lower where people are employed full time rather than on necessarily higher per hour rates.

SUMMARY OF DATA
(1975)

	District			
	<u>South San Joaquin</u>	<u>Merced</u>	<u>Tulare</u>	<u>Lower Tule</u>
Irrigated Acreage	65,008	115,336	62,400	87,690
Number of Parcels	7,223	3,486	1,522	664
Average Acres/Parcel	9	33	41	132
Miles of Canal (1)	350	723	292	204
Total Assets	\$13,735,000	\$23,213,000	\$2,250,000	\$2,925,000
Date Organized	1909	1919	1889	1950
I. WATERMASTER SERVICE	\$344,000	\$301,200	\$105,500	\$106,900
Cost/Acre	5.29	2.61	1.69	1.22
Cost/Parcel	47.63	86.40	69.32	60.99
Cost/Mile of Canal	882	417	411	524
II. CANAL MAINTENANCE (2)	\$215,000	\$529,300	\$257,200	\$213,000
Cost/Acre	3.31	4.59	4.12	2.43
Cost/Parcel	29.77	151.84	168.99	320.78
Cost/Mile of Canal	614	732	881	1,044
III. SHOP MAINTENANCE	\$76,000	\$165,000	\$62,800	\$72,000
Cost/Acre	1.17	1.43	1.01	0.82
Cost/Parcel	10.52	47.43	41.26	108.43
Cost/Mile of Canal	217	228	215	353

(1) Includes S. San Joaquin, Merced and Tulare pipelines that are main conduits or have replaced open canals; does not include Merced pipelines from wells.

(2) Canal maintenance and repair costs are for conduits described under (1), above.

I. WATERMASTER SERVICE	\$344,000 (54%)	\$301,200 (30%)	\$105,500 (25%)	\$106,900 (27%)
II. CANAL MAINTENANCE	215,000 (34%)	529,300 (53%)	257,200 (60%)	213,000 (55%)
III. SHOP MAINTENANCE	76,000 (12%)	165,000 (17%)	62,800 (15%)	72,000 (18%)
V. TOTALS	\$635,000 (100%)	\$995,500 (100%)	\$425,500 (100%)	\$391,900 (100%)
I + II + III + IV	\$635,000	\$995,500	\$425,500	\$391,900
Cost/Acre	9.76	8.63	6.82	4.47
Cost/Parcel	87.91	285.57	279.57	590.21
Cost/Mile of Canal	1,814	1,377	1,457	1,921
V. IRRIGATED ACRES/ MILE OF CANAL (1)	186	160	214	430
VI. COSTS (IV)/ TOTAL ASSETS-%	4.5	4.3	18.9	13.4

The foregoing tabulation summarizes cost factors common to all four districts; pump maintenance was eliminated, as two districts have no such installations; unlined, lined and major pipelines have been combined.

The reason for preparing this was to determine whether or not there are any percentages or common denominators that can be applied to various operations, with the view of using them as estimates for operation, maintenance and repair costs on new projects. Examination reveals no "magic" numbers but does show some ranges of expense.

Several of the items deserve explanation and comment.

Under "Number of Parcels," South San Joaquin shows a large number of small holdings, which is the reason for the comparatively high amount spent on watermaster service; each irrigator requires a ditchtender's attention.

"Total Assets" are for the irrigation systems alone and do not include the value of dams, reservoirs and power plants owned by South San Joaquin and Merced. The low figure for Tulare is probably the result of its system construction in 1889 and only minor additions, with higher costs, thereafter.

The "Watermaster Service" table shows the lowest cost per mile of canal (or conduit) maintenance to be South San Joaquin. This is the result of 83% of the system being in pipe-line, with a lower unit cost per mile than for open channels; as an example, there is practically no noxious weed control problem on those reaches.

"Canal Maintenance" figures show South San Joaquin lowest which, again, is probably because of the large percentage of main conduits being piped. The higher costs of Tulare and Lower Tule reflect their excellent canal maintenance program, where use is made of bank slopers and where both carry out extensive weed control activities.

The "Shop Maintenance" costs per mile of canal is fairly consistent for three districts, while those for the Lower Tule appear to be high; inaccuracy of basic data and estimates may account for the difference indicated.

The total cost per mile for all services seems to be fairly logical when weight is given to South San Joaquin's relatively costly watermaster service (note the large number of irrigated parcels).

The "Irrigated Acres/Mile of Canal" tabulation indicates about the extent of the services provided by the districts; in each case there are many miles of privately owned and operated water courses.

Annual costs as percentages of total assets fail to mean much; there is some question as to exactly what is contained in the figures covering Tulare and Lower Tule, as contained in the State Controller's report for 1975.

OM&R DETAILS BASED ON
TOTAL ANNUAL EXPENSES

1975
(Metric System)

(1) District	(2) Annual Expense (1)	(3) Nominal Gross Area	(4) Total Cropped Area	(5) Total Cropped Less Double Cropped	(6) Gross Water Diversions
	<u>US\$</u>	<u>ha</u>	<u>ha</u>	<u>ha</u>	<u>m³x10⁶</u>
South San Joaquin	1,133,000	28,530	27,560	26,000	394.4
Merced	2,046,000	61,760	47,440	46,130	849.1 (2)
Tulare	979,000	29,990	27,760	24,960	286.3 (3)
Lower Tule	1,011,000	41,230	35,080	35,080	330.6 (4)

(1) See Page 6.

(2) Of gross diversions $65.8\text{m}^3 \times 10^6$ were delivered to users other than irrigators.

(3) Privately owned pumps delivered an additional $74\text{m}^3 \times 10^6$ to meet crop requirements.

(4) Privately owned pumps delivered an additional $97.5\text{m}^3 \times 10^6$ to meet crop requirements.

District	(7) Water Delivered to Irrigators m ³ x10 ⁶	(8) OM&R per Hectare Cropped US\$/ha	(9) OM&R/m ³ Diverted, Pumped or Purchased US\$/m ³	(10) OM&R/m ³ Delivered to All Users US\$/m ³	(11) Delivery Efficiency (7) (6%) %
South San Joaquin	328.0	41.10	0.0029	0.0035	83.2
Merced	533.1	43.15	0.0024	0.0038 (2)	68.0
Tulare	173.7	35.25	0.0034	0.0056 (5)	60.7 (6)
Lower Tule	226.9	28.80	0.0031	0.0046 (5)	68.6 (6)

(5) Water purchased by Tulare cost approximately \$400,000 and by Lower Tule about \$500,000; if these figures were deducted from Annual Expense (Col.2) the \$0.0056 for OM&R/m³ would be reduced to \$0.0033 for Tulare and \$0.0023 at Lower Tule. See Col. 13, which shows larger areas per delivery in those districts, hence more privately owned watercourses.

(6) Some losses were used for ground water recharge.

	(12) Avg. Depth of Water/ Irrigated ha m	(13) Avg. Area Served/Delivery Gate ha
South San Joaquin	1.19	14.4
Merced	1.12	11.2
Tulare	.63 (.90) (7)	25.0
Lower Tule	.65 (.93) (7)	49.9

(7) Figures () include privately pumped water

OPERATION, MAINTENANCE AND REPAIR DATA

FROM SELECTED US BUREAU OF RECLAMATION-SPONSORED DISTRICTS

1975 DATA - METRIC SYSTEM

Abstracted from US Bureau of Reclamation Report (3 Volumes)

"1976 Accomplishments, Statistical Appendix"

Project and State	Net Irrigated Area (ha)	Gross Crop Value per Irrigated Hectare (US\$/ha)	Ave. Depth of Water Applied Per Irrigated Hectare (m)	Operation Spills (%)	Transportation Losses (%)	System Delivery Efficiency (%)	OM&R per Irrigated Hectare (US\$/ha)	OM&R per m ³ Del'd to Irrigated Hectare (m ³)	OM&R per m ³ Diverted or Pumped (US\$/m ³)
Columbia Basin, Quincy Unit, Washington	199,630	1,150	1.27	9.9	22.4	67.7	34.60	0.0027	0.0018
Yakima, Roza, Washington	26,800	2,187	1.13	7.6	26.9	65.5	45.60	0.0040	0.0026
Milk River, Chinook, Montana	13,980	223	0.38	-	68.0	32.0	14.70	0.0039	0.0012
Fourche, South Dakota	21,700	306	0.36	34.2	27.1	38.7	10.15	0.0028	0.0011
Arnold, Oregon	910	177	1.55	13.0	32.0	55.0	32.00	0.0021	0.0011
Deschutes, North Unit Oregon	19,040	996	0.81	7.6	29.9	62.5	23.30	0.0029	0.0018
Boise, Arrowrock, Idaho	53,340	867	1.24	-	39.3	60.7	27.70	0.0022	0.0014
Minidoka, Idaho Gravity Unit	25,120	725	1.80	-	29.4	70.6	21.50	0.0012	0.0008
Minidoka, Idaho Pumped Unit	29,815	860	0.94	2.1	8.8	89.1	36.60	0.0039	0.0035
Pathfinder, Wyoming-Nebraska	39,780	779	0.69	0.1	52.6	47.3	18.30	0.0027	0.0013
Riverton, Midvale, Wyoming	21,140	432	0.96	18.4	34.5	47.1	18.35	0.0019	0.0009
Wichman, Cambridge, Nebraska	17,755	716	0.57	5.5	22.9	71.6	16.20	0.0028	0.0020
Bostwick, Kansas	12,865	643	0.68	9.1	28.8	62.1	23.60	0.0035	0.0022
Uncompahgre, Colorado	27,500	840	1.41	14.5	13.4	72.1	13.90	0.0010	0.0007
Newlands, Nevada	26,155	552	0.78	-	42.9	57.1	37.50	0.0048	0.0027
Orland, California	7,000	531	0.82	2.0	43.6	54.4	32.90	0.0040	0.0022
Salt River Valley Arizona	44,980	1,925	1.22	1.2	36.1	62.7	181.90	0.0149	0.0093
Wellton-Mohawk, Arizona	26,530	1,392	2.02	0.2	9.4	90.4	68.40	0.0034	0.0031
Lower Rio Grande, Mercedes Texas	26,880	867	0.31	--	23.5	76.5	21.90	0.0071	0.0054

OFFICE MEMORANDUM

DATE: February 6, 1979

TO: Distribution List Below

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

SUBJECT: Report on OM&R Costs for Four Western USA Irrigation Districts

1. We have found it to be virtually impossible to find in published literature reliable cost information on well-maintained irrigation projects: data which can be used by Bank staff and by irrigation project managers in developing countries as a reference base from which to judge, in some manner, the resources needed to operate, maintain, and keep in good repair, relative modern irrigation systems. It is recognized that most projects are unique, and that cost parameters for one project may not be applicable to any other. Still, we know also that, where comparability can be identified by knowledgeable persons, selected cost parameters can be useful for many types of work and industry comparisons.

2. With these thoughts in mind, AGR/CPS last year retained the services of four California irrigation district managers and chief engineers under the leadership of Kenneth McSwain of Merced, California, to prepare a report on OM&R costs for their districts. The attached report is the result of their efforts, which is transmitted for your review and comments. We are especially interested in your views as to the value of having this report reproduced in greater quantity, with the specific identity of the districts perhaps being eliminated, for distribution to all interested irrigation staff and to selected LDC agencies and staff who might find it useful.

3. With Bank work being exclusively in LDCs, one could ask why California irrigation districts were studied at all. There were two principal reasons:

- (a) The districts are relatively well-managed, operated and maintained; and
- (b) OM&R and water distribution records are accurately recorded in considerable detail.

Identifying an LDC irrigation project which could satisfy these two important criteria appeared to be a near-impossible task. Also, the technology level of the districts studied is well within the capability of LDC projects. Furthermore, the size of delivery units, perhaps surprisingly, are not out of line with those in many LDC projects.

4. While each reader is free to analyze the data (presented in the main report in the English system of measurement units) as they think appropriate, the attached summary sheet in metric units reveals many interesting facts. Despite extremely high labor costs, costs per hectare and per m³ are quite reasonable. Other suggestions for meaningful parameters are solicited.

Attachment

FLHotes:rm

cc: Messrs. Tibor/Rodger, Finlinson, Gupta, O'Brien, Pranich, Baker, Tennent (ASP); Laeyendecker, Plusquellec, Niaz (EMP); Stevenin, Pradithavanij, Kuffner (EAP); Dumoulin, Martinod, Cornejo (LCP); Smith, Morton, Whitford (AEP); Meimaris, Des Bouvrie (WAP); Collins (AGR/CPS)

Selected Operation, Maintenance and Repair Data

for Four Irrigation Districts in Western USA

1975 Data-Metric System

APR 10 2023

DECLASSIFIED

(1) DISTRICT	(2) ANNUAL EXPENSE /1	(3) NOMINAL GROSS AREA	(4) TOTAL CROPPED AREA	(5) TOTAL CROPPED LESS DOUBLE CROPPED	(6) GROSS WATER DIVERSIONS	(7) WATER DELIVERED TO IRRIGATORS	(8) OM&R PER HECTARE CROPPED	(9) OM&R/m ³ DIVERTED, PUMPED OR PURCHASED	(10) OM&R/m ³ DELIVERED TO ALL USERS	(11) DELIVERY EFFICIENCY 100 x (7) ÷ (6)
	US\$	ha	ha	ha	m ³ x 10 ⁻⁶	m ³ x 10 ⁻⁶	US\$/ha	US\$/m ³	US\$/m ³	%
A	1,133,000	28,530	27,560	26,000	394.4	328.0	41.10	0.0029	0.0035	83.2
B	2,046,000	61,760	47,440	46,130	849.1 /2	533.1	43.15	0.0024	0.0038 /2	68.0
C	979,000	29,990	27,760	24,960	286.3 /3	173.7	35.25	0.0034	0.0056 /5	60.7 /6
D	1,011,000	41,230	35,080	35,080	330.6 /4	226.9	28.80	0.0031	0.0046 /5	68.6 /6

/1 From Page 6 of basic report.

/2 Of gross diversions, 65.8 m³ x 10⁶ were delivered to users other than irrigators.

/3 Privately-owned pumps delivered an additional 74 m³ x 10⁶ to meet crop requirements.

/4 Privately-owned pumps delivered an additional 97.5 m³ x 10⁶ to meet crop requirements.

/5 Water purchased by C cost approximately \$400,000 and by D about \$500,000; if these figures were deducted from Annual Expense (Column 2), the \$0.0056 for OM&R/m³ would be reduced to \$0.0033 for C and \$0.0023 for D. (See Column 13, which shows larger areas per delivery in those districts; hence, more privately-owned watercourses.)

/6 Some losses were used for groundwater recharge.

(1) DISTRICT	(12) AVG. DEPTH OF WATER/ IRRIGATED HA	(13) AVG. AREA SERVED/DELIVERY GATE	(14) TOTAL NUMBER OF PERSONNEL	(15) AVERAGE ANNUAL PERSONNEL COST PER EMPLOYEE	(16) PERSONNEL COSTS AS % OF COSTS OF PERSONNEL + MATERIALS + EQUIPMENT	(17) GROSS HA PER EMPLOYEE	(18) NO. OF DITCH- RIDERS	(19) AVG. AREA PER DITCH- RIDER	(20) AVG. NO. DELIVERY GATES PER DITCH- RIDER
	m	ha		\$/employee	%			ha	
A	1.19	14.4	58	12,450	92.2	492	27	2,420	67
B	1.12	11.2	135	10,790	85.4	457	24	4,800	172
C	.63 (.90) /7	25.0	29	12,795	79.3	1,034	7	7,450	143
D	.65 (.93) /7	49.9	23	13,045	66.7	1,793	5	17,540	140

/7 Figures (.) include privately-pumped water.

OFFICE MEMORANDUM

TO: Mr. Ted J. Davis (Chief, RORSU)

DATE February 6, 1979

FROM: Michael Cernea *MC*SUBJECT: Computerized Roster of Sociological Consultants

1. The RORSU roster of sociological consultants has proven itself to be increasingly useful to Bank regional departments. Currently it contains more than 150 files.
2. Per your suggestion, I have been in contact with the Consultant Section of the Personnel Department to explore the procedure for having the RORSU roster introduced into the computerized system for Bank consultants, which is currently being developed. To facilitate the retrieval of appropriate consultants, it would be necessary to adopt and codify a certain classification of the special skills of sociologists and anthropologists, which is more detailed than Personnel Department would normally use. The Consultant Section accepted our proposal and we are working now on preparing the appropriate classification.
3. The coding of our files will be done by students employed by the Personnel Department and paid by the hour. It would cost up to \$700. The Personnel Department, however, has spent its FY79 budget for coding, but would be willing to immediately introduce the RORSU roster into the general Bank computerized system if we could assist them by undertaking the cost and by providing some supervision. I believe that we would be well advised to accept this arrangement.

MCernea/dc

S. Agriculture

February 5, 1979

Dr. Robert Werge
Anthropologist, Social Science Unit
The International Potato Center
Apartado 5969
Lima, Peru

Dear Dr. Werge:

I am pleased to find out from your January 10 letter that you plan to be in Washington during the first week in April. The third of April seems to be a good day for a seminar. But, in order to organize this seminar, I would need more clarification about what you could present to the Bank staff.

As I indicated during our meeting, our sociological seminars are intended to increase staff awareness on the social/cultural variables which bear upon farmers' agricultural strategies and upon their economic behavior. Bank staff are interested in understanding better how the structure of the family household affects the division of labor, the receptivity vis-a-vis certain technological innovations, the decisions about cropping patterns, the mix of subsistence and commercial crops which are cultivated, etc. What could a seminar on potato growers tell the Bank staff in order to help them understand better the constraints which may affect potato growing in Latin American (or other) countries?

I am confident that your field studies have produced a wealth of information and I believe that the question is what to select out of your findings for your presentation during the seminar. Maybe the previous paragraph will help you in writing a brief outline (two or three pages) for your presentation. This outline would provide me with the opportunity to make more specific comments which then could help you in finalizing your presentation. I would like to have in advance a paper from you which I could circulate to the seminar participants as a background document about two weeks before the date of the seminar. If such a paper is circulated then, your verbal presentation would focus on selected points which can be pursued in depth.

Two more observations -- the title you suggested for the presentation seems attractive ("Potatoes and People: interdisciplinary agriculture and rural development research"), except for the fact that the seminar should not deal just with the research but mainly with farmers' reactions to the potato technologies produced by research. Second, you may wish to consider whether you want to restrict yourself to potato growing or to dealing with

social/cultural aspects of growing other root crops as well. Of course, as I mentioned to you, I would encourage as many references as possible (positive or negative) to the Bank projects with potato components during your verbal presentation or in your written paper.

Appropriate arrangements will be made for an honorarium to be paid for your paper.

We are not far away from your seminar and, therefore, speedy communication is of the essence.

I am looking forward to reading your outline and will be further in touch with you.

With best regards,

Sincerely yours,

Michael Cernea

MC/dc

cc: Mr. Davis, Ms. Kolan (Personnel)

February 5, 1979

Mr. Donald J. Duck
Deputy Assistant Commissioner
Engineering and Research Center
U.S. Bureau of Reclamation
Denver Federal Center, Building #67
Denver
Colorado 80225

Dear Mr. Duck:

Please extend my thanks to all of those in your organization who helped make my visit to your Denver offices on January 31 - February 1, 1979, a very fruitful one. The report copies obtained will be very useful references to our Bank irrigation staff. I especially enjoyed the personal discussions with your staff on technical matters, about which there may not yet be clear, unambiguous answers. The Bureau of Reclamation experience and research in these aspects are worth knowing.

In particular, I would like to acknowledge the help of Messrs. Joe Cutschall, Dan Macura, Chuck Hight, Ken Kauffman, Ron Hicks, Ben Prichard, Ray Winger, Jack Christopher, Herb Ham, Gary Hansen, Luvern Resler, Jerry Schaak, Clark Buyalski, Eric Pemberton, Fred Bertle and J.G. Schonbock.

Sincerely,

Frederick L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department

cc: Mr. J. Cutschall
U.S. Bureau of Reclamation
Washington, D.C. 20240

FLHotes
FLHotes:rm

February 6, 1979

Mr. David A.P. Butcher
FAO Representative Bangladesh
P.O. Box 5039
Newmarket Dacca
Bangladesh

Dear David:

We just received a letter from Mr. Yriart acknowledging Mr. Yudelman's letter to him, in which your contribution was highly appreciated. It certainly seems that FAO management was also very pleased with your cooperation with us.

Mr. Yriart also mentioned that you communicated to FAO management your observations regarding the World Bank's progress in involving sociologists and anthropologists in project work. I would be very pleased to have a copy of your observations.

I presume that you are working still on the review paper, as you indicated before departing from Washington. I am eagerly waiting to read it. Because of my absence in December, the progress on our note on compulsory resettlement has been slow, but now I hope we will finalize it soon. I will keep you informed of course.

Once again, let me tell you how much I enjoyed working with you.

With best regards,

Sincerely yours,

Michael Cernea

MC/dc

Enclosure

S. Aguilera

Mr. Ted J. Davis, AGROR

February 2, 1979

Guido Deboeck, AGROR

Seminar on Sampling and Survey Techniques

As requested, I have invited Mr. Samuel R. Daines of Practical Concepts, Inc. to conduct a seminar on "Survey and Sampling Techniques for Monitoring and Evaluation of Poverty-Oriented Projects". This will take place on February 21 at 10:00 A.M. in Room D-556.

Mr. Daines has agreed to provide a 45 minute presentation on his field experience with these techniques, and to answer questions from the participants for the remaining time (1 hour 15 minutes).

Attached is an outline of the project experience of Mr. Daines (Annex 1), as well as an abstract from a manual he produced on "Economic and Data Analysis Techniques for Project Design and Evaluation".

Parts B and D of this abstract provide a systematic overview of data collection, processing, and analysis techniques for evaluation efforts. I suggest that this abstract be used as a background paper for the seminar.

Attachment

GDeboeck/cc

cc: Samuel R. Daines, Mr. G. Christofferson, Mr. G. Thomas, Mr. b. Thomas, Mr. and Mrs. (1/2)

S. Aquilino

Mr. Donald E. Brown, NDP

January 31, 1979

Jim Goering, AGREP



Multiclient Studies by Centro de Tecnologia Promon (CTP)

1. You may wish to include in your files the attached materials by CTP on multiclient studies relating to: (1) the use of cassava as a raw material for fuel alcohol production; and (2) the treatment of stillage from fuel alcohol distilleries.

2. I have written a letter of acknowledgment to Dr. Trindade and indicated that these materials would be circulated to appropriate offices in the Bank.

cc: Mr. G. Donaldson, Chief, AGREP

JGoering:ga

January 30, 1979

Mr. W. Krostitz
Secretary
Intergovernmental Group on Meat
FAO of the UN
Viale delle Terme di Caracalla
Rome 00100, Italy

Dear Mr. Krostitz:

✓ In response to your request dated 20 October 1978, I attach a set of tables showing information on World Bank lending for livestock development.

World Bank (IBRD and IDA) support to agricultural development has been expanding markedly, with the cumulative proportion of direct support to livestock development reaching approximately 11% of total agricultural lending through the end of the 1978 fiscal year. (Our fiscal years end on June 30 of the year stated.)

There are two categories of assistance which the Bank is providing to livestock development in member countries. The first category of IBRD loans and/or IDA credits is for projects specifically identified as livestock and/or dairy development projects (see attached Table 1). In this category, the Bank has in the past (up to 1978) provided US\$1.76 billion to assist the implementation of 94 such projects. Another US\$1.34 billion are planned for such assistance for the remainder of FY79 to FY84 for use in some 46 new projects.

Of the 94 past livestock or dairy projects, 20 were in East African countries, 10 in West Africa, 12 in Europe and Middle East region, 38 in Latin America, 7 in East Asia and 7 in South Asia. Of the 46 prospective projects, 14 are planned for East Africa, 10 for West Africa, 11 for Europe and Middle East, 3 for Latin America, 2 for East Asia and 6 for South Asia.

The second category of World Bank assistance is incorporated in multi-purpose or general projects such as agricultural credit, rural development, and irrigation projects. In the past five fiscal years (1974-1978) there were 63 such projects involving livestock and/or dairy components (see attached Table 2). These projects have become more frequent; there were 7 such projects in FY74, 17 in FY75, 8 in FY76, 23 in FY77 and 13 in FY78.

The share of the livestock/dairy components in these projects varies widely among the second category of projects (from a very small percentage to over 50%). While it is difficult to assign a dollar figure to the livestock/dairy components in these projects, the sums are substantial. The Bank's contribution to just the foreign exchange portions of these multi-purpose projects amounts to US\$2.32 billion.

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Table 2: OTHER IBRD/IDA PROJECTS WITH LIVESTOCK/DAIRY COMPONENTS (continued)

PROJECT ID	COUNTRY	PROJECT NAME	LIVESTOCK (L) AND/OR DAIRY (D) COMPONENTS
----- (FY 77) -----			
<u>SOUTH ASIA</u>			
8-IND-AC-17	INDIA	ARDC II	D
8-IND-AP-04	"	KERALA AGRICULTURE DEV.	D
----- (FY 78) -----			
<u>EAST AFRICA</u>			
2-MAL-AD-10	MALAWI	SHIRE CONSOLIDATION	L
2-TAN-AD-02	TANZANIA	RURAL DEVT. III	L
2-CHD-AI-06	CHAD	SAHELIAN ZONE PROJECT	L + D
<u>EUROPE AND MIDDLE EAST</u>			
5-EGT-AC-02	EGYPT	SOHAG/MINUFIYA AGR. DEV. I	D
5-MYC-AD-06	MOROCCO	KARIA-TISSA RAINFED AGR.	L
5-POR-AC-01	PORTUGAL	AGRIC. CREDIT I	L
5-YUG-AC-02	YUGOSLAVIA	AGRIC. CREDIT II	L + D
<u>LATIN AMERICA</u>			
ARG-AC-01	ARGENTINA	AGRICULTURAL CREDIT	L
6-BRA-AD-08	BRAZIL	RURAL DEVT. - PARAIBA	L
6-BRA-AD-11	"	INTEGRATED R/D IV - BAHIA	L + D
6-MXC-AR-01	MEXICO	TROPICAL AGR. DEVT.	L + D
<u>EAST ASIA</u>			
7-INS-AC-01	INDONESIA	RURAL CREDIT I	D
7-LAO-AC-01	LAOS	AGR. REHAB. & DEVT.	L

Source: World Bank, 1978-79.

Table 2 : OTHER IBRD/IDA PROJECTS WITH LIVESTOCK/DAIRY COMPONENTS (continued)

PROJECT ID	COUNTRY	PROJECT NAME	LIVESTOCK (L) AND/OR DAIRY (D) COMPONENT
----- (FY 77) -----			
<u>EAST AFRICA</u>			
2-KEN-AC-03	KENYA	THIRD AGRICL. CREDIT	L + D
2-KEN-AD-05	"	INTEGRATED AGRIC. DEVT.	L + D
2-RWA-AD-05	RWANDA	RURAL DEVT (BUGESERA)	D
2-SUD-AD-05	SUDAN	SAVANNAH DEVELOPMENT	D
2-TAN-AD-04	TANZANIA	TABORA RURAL DEV. (R/D II)	L
<u>WEST AFRICA</u>			
3-CAM-AD-06	CAMEROON	RURAL DEVT. FUND	L
3-CHD-AD-03	CHAD	RURAL PROJECTS FUND	L
3-MLI-AD-03	MALI	SUB-AGRIC. COTTON	L
<u>EUROPE AND MIDDLE EAST</u>			
5-MYC-AC-03	MOROCCO	AGRICULTURE CREDIT III	L + D
5-MYC-AI-11	"	DOUKKALA IRRIGATION II	L + D
5-TUN-AC-06	TUNISIA	AGRICULTURAL CREDIT II	L + D
5-TUN-AI-03	"	IRRIG. DEVT. I (SIDI-SALEM)	L + D
5-YUG-AN-04	YUGOSLAVIA	MACEDONIA AGR./AGROIND II	L + D
<u>Latin AMERICA</u>			
6-BRA-AD-15	BRAZIL	MINAS GERAIS DEVT. I	L + D
6-CLM-AC-02	COLOMBIA	AGRIC. CREDIT II	L + D
6-CLM-AD-04	"	RURAL DEVT. I	L + D
6-COS-AC-04	COSTA RICA	AGR. CREDIT & RURAL DEVT.	L + D
6-ECU-AC-01	ECUADOR	AGRICULTURE CREDIT I	L + D
6-HAI-AD-01	HAITI	RURAL DEVELOPMENT I	L + D
6-MXC-AD-03	MEXICO	RURAL DEVELOPMENT III	L + D
<u>EAST ASIA</u>			
7-PHL-AC-04	PHILIPPINES	AGRIC. CREDIT IV	L

(continued)

Table 2: OTHER IBRD/IDA PROJECTS WITH LIVESTOCK/DAIRY COMPONENTS (continued)

PROJECT ID	COUNTRY	PROJECT NAME	LIVESTOCK (L) AND/OR DAIRY (D) COMPONENT
----- (FY 75) -----			
<u>EUROPE AND MIDDLE EAST</u>			
5-ROM-AC-01	ROMANIA	AGR. CR. SADOVA - CORABIA	L + D
5-TUN-AI-01	TUNISIA	IRRIG. REHABILITATION	L + D
5-TUR-AD-01	TURKEY	AGRIC. RURAL DEVT.	L + D
5-YUG-AC-01	YUGOSLAVIA	AGRIC. CREDIT I	L + D
<u>LATIN AMERICA</u>			
6-BOL-AC-01	BOLIVIA	AGRIC. CREDIT I	L
6-BRA-AD-13	BRAZIL	AGR. SAO FRANCISCO POLDER	L
6-CLM-AD-02	COLOMBIA	LAND COLONIZATION II	L
6-CLM-AI-06	"	IRRIGATION REHAB. I	L
6-MXC-AD-02	MEXICO	IRRIGATED RURAL DEVT. II	L
6-MXC-AI-12	"	IRRIGATION VII - BAJO	D
6-PAR-AC-02	PARAGUAY	AGRICULTURE II	L
<u>SOUTH ASIA</u>			
8-IND-AI-19	INDIA	DROUGHT PRONE AREAS I	L + D
----- (FY 76) -----			
<u>EAST AFRICA</u>			
2-ETH-AL-03	ETHIOPIA	RANGELANDS DEVT. PROJ.	L + D
<u>WEST AFRICA</u>			
3-GAM-AD-02	GAMBIA	RURAL DEVT.	L
3-GHA-AD-02	GHANA	RURAL DEVT. I	L
<u>EUROPE AND MIDDLE EAST</u>			
5-MYC-AI-07	MOROCCO	DOUKKALA IRRIG.	L + D
5-ROM-AI-03	ROMANIA	RASOVA IRRIG. & AGRIC. DEVT.	L + D
5-TUR-AC-01	TURKEY	TCZB I	L
<u>LATIN AMERICA</u>			
6-BOL-AD-01	BOLIVIA	RURAL DEVT. I	L + D
6-HDS-AL-03	HONDURAS	AGRICULTURAL CREDIT	L + D

(continued)

Table 2 : OTHER IBRD/IDA PROJECTS WITH LIVESTOCK/DAIRY COMPONENTS

PROJECT ID	COUNTRY	PROJECT NAME	LIVESTOCK (L) AND/OR DAIRY (D) COMPONENT
----- (FY 74) -----			
<u>PAST BORROWERS</u>			
1-ISR-AC-02	ISRAEL	AGRIC. CREDIT II	L + D
<u>EAST AFRICA</u>			
2-SUD-AD-04	SUDAN	AGRIC. SOUTH REGION REHABILITATION	D
<u>WEST AFRICA</u>			
3-UPV-AD-02	UPPER VOLTA	BLACK VOLTA AGR. DEVT.	L
<u>LATIN AMERICA</u>			
6-JAM-AC-02	JAMAICA	AGR. CREDIT II	L + D
6-NIC-AC-03	NICARAGUA	AGRIC. CREDIT	L + D
6-PER-AC-05	PERU	AGRIC. - BANCO AGROPECUARIO	L
<u>EAST ASIA</u>			
7-PHL-AC-03	PHILIPPINES	AGRIC. CREDIT III	D
----- (FY 75) -----			
<u>EAST AFRICA</u>			
2-KEN-AD-04	KENYA	GROUP FARM REHAB. CREDIT	D
2-MAL-AD-07	MALAWI	LILONGWE III - RURAL DEVELOPMENT	D
<u>WEST AFRICA</u>			
3-SEN-AD-03	SENEGAL	SINE SALOUM AGR. DEVT.	L + D
<u>EUROPE AND MIDDLE EAST</u>			
5-IRN-AC-03	IRAN	AGR. DEVT. BANK III	L + D
5-MYC-AI-03	MOROCCO	SOUSS GROUNDWATER	L + D

(continued)

TABLE 1 : IBRD /IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>SIGNING DATE (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>SOUTH ASIA</u>					
8-IND-AL-06	INDIA	AGR. CR. DAIRY I	IDA	6/19/74	30.0
8-IND-AL-07	"	LIVESTOCK	IDA	(1981)	40.0
8-IND-AC-23	"	NAT. DIARY PROJECT	IDA	6/08/78	150.0
8-IND-AC-25	"	SECOND NAT. DAIRY	IDA	(1980)	100.0
8-PAK-AL-01	PAKISTAN	LIVESTOCK I	IBRD	2/18/77	10.0
8-PAK-AL-02	"	LIVESTOCK II	IDA	(1981)	20.0
8-PAK-AL-03	"	LIVESTOCK III	IDA	(1984)	30.0
8-SRI-AL-01	SRI LANKA	AGRICL DAIRY	IDA	8/09/74	9.0
8-SRI-AL-02	"	DAIRY II	IDA	(1984)	15.0

SOURCE: WORLD BANK, 1978-79.

TABLE 1 : IBRD./IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>DATE SIGNED (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>LATIN AMERICA</u>					
6-URU-AL-05	URUGUAY	LIVESTOCK IV 1ST STAGE	IBRD	4/26/72	11.2
6-URU-AL-06	"	LIVESTOCK V	IBRD	10/15/75	17.0
6-URU-AL-07	"	LIVESTOCK & AGRIC. DEVT.	IBRD	(1980)	48.0
6-URU-AL-08	"	LIVESTOCK IV 2ND STAGE	IBRD	10/25/73	13.5
6-VEN-AL-01	VENEZUELA	LIVESTOCK I	IBRD	3/13/72	11.0
<u>EAST ASIA</u>					
7-PAP-AC-02	PAPUA- N. GUINEA	AGR. CR (LIVESTOCK)	IDA	1/04/73	5.0
7-INS-AL-01	INDONESIA	LIVESTOCK I	IDA	1/31/73	3.6
7-KOR-AL-01	KOREA	LIVESTOCK	IDA	2/11/71	7.0
7-KOR-AL-02	"	LIVESTOCK II	IBRD	6/04/76	15.0
7-KOR-AL-03	"	LIVESTOCK III	IBRD	(1984)	20.0
7-PHL-AL-01	PHILIPPINES	LIVESTOCK	IBRD	5/25/72	7.5
7-PHL-AL-02	"	SECOND LIVESTOCK	IBRD	4/08/76	20.5
7-PHL-AL-03	"	LIVESTOCK/ FISHERIES	IBRD	(1980)	45.0
7-THL-AL-01	THAILAND	LIVESTOCK DEVT	IBRD	2/27/78	5.0
<u>SOUTH ASIA</u>					
8-BUA-AL-01	BURMA	LIVESTOCK I	IDA	12/30/75	7.5
8-BUA-AL-02	"	LIVESTOCK II	IDA	(1984)	15.0
8-IND-AL-04	INDIA	DAIRY-MADHYA PRADESH	IDA	12/08/74	16.4
8-IND-AL-05	"	DAIRY-RAJASTHAN	IDA	12/08/74	27.7

TABLE 1 : IBRD/IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>SIGNING DATE (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>LATIN AMERICA</u>					
6-ECU-AL-01	ECUADOR	LIVESTOCK	IBRD	6/19/67	4.0
6-ECU-AL-02	"	LIVESTOCK II	IDA	1/20/70	1.5
6-ECU-AL-03	"	LIVESTOCK III	IDA	12/10/70	10.0
6-GUA-AL-01	GUATEMALA	LIVESTOCK	IBRD	2/10/71	20.0
6-GUY-AL-01	GUYANA	LIVESTOCK	IDA	11/27/70	2.2
6-HDS-AL-01	HONDURAS	LIVESTOCK CREDIT	IDA	3/02/70	2.6
6-HDS-AL-02	"	LIVESTOCK II	IDA	10/29/73	6.6
6-MXC-AL-01	MEXICO	LIVESTOCK	IBRD	10/01/65	25.0
6-MXC-AL-02	"	LIVESTOCK & AGRIC DEVT	IBRD	6/12/69	65.0
6-MXC-AL-03	"	LIVESTOCK III	IBRD	6/09/71	75.0
6-MXC-AL-04	"	LIVESTOCK IV	IBRD	6/18/73	110.0
6-MXC-AL-05	"	AGRIC/LIVESTOCK CREDIT	IBRD	3/11/76	125.0
6-MXC-AL-06	"	LIVESTOCK CREDIT VI	IBRD	5/16/78*	200.0
6-MXC-AL-07	"	AGR. LIVESTOCK CREDIT III	IBRD	(1984)	150.0
6-PAN-AL-01	PANAMA	LIVESTOCK	IBRD	6/08/73	4.7
6-PAN-AL-02	"	LIVESTOCK II	IBRD	4/28/77	8.0
6-PAR-AL-01	PARAGUAY	LIVESTOCK I	IDA	12/26/63	3.6
6-PAR-AL-02	"	LIVESTOCK II	IDA	4/04/66	7.5
6-PAR-AL-03	"	LIVESTOCK DEVT III	IBRD/IDA	6/25/69	8.6
6-PAR-AL-04	"	LIVESTOCK IV	IBRD	9/06/74	10.0
6-PAR-AL-05	"	LIVESTOCK & AGRIC DEVT	IBRD	(1979)	20.0
6-URU-AL-01	URUGUAY	LIVESTOCK	IBRD	12/30/59	7.0
6-URU-AL-02	"	LIVESTOCK	IBRD	3/30/65	12.7
6-URU-AL-03	"	LIVESTOCK III	IBRD	6/30/70	6.3
6-URU-AL-04	"	LIVESTOCK III (SUPPL.)	IBRD	6/30/71	4.0

* Date of approval.

TABLE 1 : IBRD/IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>SIGNING DATE (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>EUROPE AND MIDDLE EAST</u>					
5-MYC-AL-01	MOROCCO	LIVESTOCK/ RANGE IMPRV	IBRD	(1983)	25.0
5-POR-AL-01	PORTUGAL	LIVESTOCK (PADAP)	IBRD	(1982)	40.0
5-SYR-AL-01	SYRIAN ARAB REP.	LIVESTOCK I	IBRD	7/22/76	17.5
5-TUR-AL-01	TURKEY	LIVESTOCK I	IDA	2/22/71	4.5
5-TUR-AL-02	"	LIVESTOCK II	IDA	9/28/72	16.0
5-TUR-AL-03	"	LIVESTOCK III	IBRD	5/26/76	21.5
5-TUR-AL-04	"	LIVESTOCK IV	IBRD	6/05/78	24.0
5-TUR-AL-05	"	LIVESTOCK PRODUCTION I	IBRD	(1982)	70.0
5-YAR-AL-01	YEMEN ARAB REPUBLIC	LIVESTOCK CR. & PROCESS.	IDA	11/15/76	5.0
5-YAR-AL-02	"	LIVESTOCK II	IDA	(1984)	15.0
<u>LATIN AMERICA</u>					
6-ARG-AL-01	ARGENTINE	BALCARCE LIVESTOCK	IDA	7/31/67	15.0
6-BOL-AL-01	BOLIVIA	BENI LIVESTOCK DEVT	IDA	5/26/67	2.0
6-BOL-AL-02	"	LIVESTOCK II	IDA	1/13/70	1.4
6-BOL-AL-03	"	LIVESTOCK III	IDA	6/25/71	6.8
6-BRA-AL-01	BRAZIL	LIVESTOCK	IBRD	9/23/76	40.0
6-BRA-AL-02	"	LIVESTOCK II	IBRD	12/19/72	26.0
6-CHL-AL-01	CHILE	LIVESTOCK	IBRD	12/18/63	19.0
6-CHL-AL-02	"	LVSTK II/FRUIT & VINEYARD	IBRD	3/17/77	25.0
6-CLM-AL-01	COLUMBIA	LIVESTOCK	IBRD	5/16/66	16.7
6-CLM-AL-02	"	LIVESTOCK II	IBRD	12/29/69	18.3
6-DOM-AL-01	DOMINICAN REPUBLIC	LIVESTOCK/DAIRY FARMING	IDA	5/19/71	5.0

TABLE 1 : IBRD/IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>SIGNING DATE (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>WEST AFRICA</u>					
3-IVC-AL-02	IVORY COAST	LIVESTOCK I	IBRD	(1983)	10.0
3-MLI-AL-01	MALI	LIVESTOCK	IDA	4/11/75	13.3
3-MLI-AL-02	"	LIVESTOCK II	IDA	(1981)	8.0
3-MTA-AL-01	MAURITANIA	LIVESTOCK	IDA	12/17/71	4.2
3-NIG-AL-01	NIGER	LIVESTOCK I	IDA	(1979)	8.5
3-NIR-AL-01	NIGERIA	LIVESTOCK I	IBRD	3/20/75	21.0
3-NIR-AL-04	"	LIVESTOCK IV	IBRD	(1984)	15.0
3-SEN-AL-01	SENEGAL	EAST SENEGAL LIVESTOCK	IDA	6/17/76	4.2
3-UPV-AL-01	UPPER VOLTA	LIVESTOCK I	IDA	6/18/75	9.0
3-UPV-AL-02	"	LIVESTOCK II	IDA	(1981)	13.0
<u>EUROPE AND MIDDLE EAST</u>					
5-ROM-AC-02	ROUMANIA	PIG PROD. & PROCESS	IBRD	7/15/77	71.0
5-ROM-AL-03	"	CATTLE DEV.	IBRD	(1979)	75.0
5-ROM-AC-04	"	AGR. CREDIT IV (PIG II)	IBRD	(1979)	50.0
5-ROM-AC-06	"	AGR. CREDIT V (POULTRY)	IBRD	(1979)	50.0
5-ROM-AC-08	"	AGR. CREDIT VII (CATTLE)	IBRD	(1981)	40.0
5-AFG-AL-01	AFGANISTAN	LIVESTOCK I	IDA	5/02/73	9.0
5-AFG-AL-02	"	LIVESTOCK II -RURAL DEVT.	IDA	6/28/76	15.0
5-AFG-AL-03	"	LIVESTOCK III	IDA	(1981)	15.0
5-ALG-AL-01	ALGERIA	LIVESTOCK	IBRD	(1983)	30.0
5-JOR-AL-01	JORDAN	RURAL DEVT /LIVESTOCK	IBRD	(1983)	10.0

TABLE 1 : IBRD/IDA LIVESTOCK/MEAT PROJECTS (continued)

<u>PROJECT-ID</u>	<u>COUNTRY</u>	<u>PROJECT NAME</u>	<u>SOURCE</u>	<u>SIGNING DATE (OR FY FOR APPROVAL)</u>	<u>AMOUNT (\$MILLIONS)</u>
<u>EAST AFRICA</u>					
2-SOM-AL-02	SOMALIA	CENTRAL RANGELANDS DEVT.	IDA	(1979)	6.0
2-SOM-AL-03	"	LIVESTOCK III	IDA	(1982)	8.0
2-SOM-AL-04	"	LIVESTOCK IV	IDA	(1984)	8.0
2-SUD-AL-01	SUDAN	LIVESTOCK MARKETING	IDA	6/16/78	25.0
2-SUD-AL-03	"	LIVESTOCK III	IDA	(1984)	20.0
2-TAN-AL-01	TANZANIA	BEEF RANCH DEV.	IDA	10/31/68	1.3
2-TAN-AL-02	"	LIVESTOCK II	IDA	5/23/73	18.5
2-TAN-AL-03	"	LIVESTOCK III	IDA	(1980)	25.0
2-TAN-AN-01	"	DAIRY DEVT. I	IDA	8/15/75	10.0
2-TAN-AN-02	"	DAIRY DEVT. II	IDA	(1981)	20.0
2-UAN-AL-01	UGANDA	BEEF RANCHING	IDA	10/05/68	3.0
2-ZAI-AL-01	ZAIRE	LIVESTOCK I	IDA	6/21/73	8.5
2-ZAI-AL-02	"	LIVESTOCK II	IDA	8/02/77	8.0
2-ZAM-AL-01	ZAMBIA	LIVESTOCK	IBRD	6/30/69	2.5
2-ZAM-AL-02	"	LIVESTOCK II	IBRD	(1984)	20.0
<u>WEST AFRICA</u>					
3-CAE-AL-01	CENTRAL AFRICAN EMPIRE	LIVESTOCK	IDA	(1979)	1.5
3-CAM-AL-01	CAMEROUN	LIVESTOCK	IBRD	4/14/74	11.6
3-CAM-AL-02	"	LIVESTOCK II	IBRD/IDA	(1979)	15.0
3-CHD-AL-01	CHAD	LIVESTOCK I	IDA	5/31/72	2.2
3-CHD-AL-02	"	LIVESTOCK II	IDA	4/14/78	11.5
3-COB-AL-01	CONGO BRAZ.	LIVESTOCK	IDA	11/02/73	5.6
3-COB-AL-02	"	LIVESTOCK II	IDA	(1983)	10.0
3-GHA-AL-01	GHANA	LIVESTOCK DEVT.	IDA	7/26/74	2.0
3-GHA-AL-02	"	LIVESTOCK II	IBRD/IDA	(1982)	25.0
3-GUI-AL-01	GUINEA	LIVESTOCK	IDA	(1981)	10.0

January 30, 1979

In designing livestock projects, the Bank observes two general social policy guidelines. First, priority is given to the grain demands for human consumption by limiting excessive use of grains for stock feed. Second, cheap cost policies to assist poor urban consumers should not be maintained at the expense of meat producers who carve out their existence at subsistence level.

The purposes of the Bank's livestock projects include, inter alia, increasing productivity or efficiency in production, veterinary services, processing, marketing, transport, training/extension, credit facilities, improvement of breeding stock and range management, improvement of existing infrastructures and institutions or the creation of new ones. Increasing priority is being given to the problems of small farmers or small-scale operators, with better income distribution being a related objective.

We hope this information is adequate for your needs.

Yours sincerely,

Shansher Singh
Chief

Commodities and Export Projections Division
Economic Analysis and Projections Department

Attachments: 2 tables

cc: Mr. A.C. Leaks, FAO

cc: H. Hughes, R. Choetham, M. Tudeluan

pe
PYeung/CChung/SSinghtdbr

OFFICE MEMORANDUM

Yellow
 S. Agriculture
 cc S. Education

TO: Mr. R. Dosik (CPSVP)

DATE: January 30, 1979

FROM: S. Heyneman (EDC)

S.H.

SUBJECT: Monitoring and Evaluation in Education
and Agriculture Projects

1. Attached are the tables which you have requested, tables which compare the amount of monitoring and evaluation in the Education Sector with that of the Agricultural Sector. Perhaps it would be worthwhile to point out the more salient features.
2. There is, first of all, little dearth of evaluation and monitoring (E & M) discussion in either Sector. But there is more, proportionally, in Education than in Agriculture (Table 1). Over 90% of the Project Appraisal reports between FY74 and FY78 have referred to doing an evaluation of some kind. This does not mean that evaluation is clearly defined; nor does it mean that it will be effectively implemented; or utilized. But it is discussed.
3. I think it fair to say that a key, though by no means the only predictor of good evaluation is the commitment of sufficient resources to do the task. This can be done through project funds in two ways. One is to allocate some of the general project administration budget to do evaluation at some point in time during the project cycle. A second is to specify evaluation resources as a specific budget item in the Appraisal and Loan documents, along with other budget categories for technical assistance, civil works and the like. The frequency with which resources are allocated for educational evaluation by the first method may be high; but except for instances in which the products have been noteworthy (e.g: Tanzania V), it is difficult to monitor. Each case occurs independently; and because a level of resources has not been specified it is not always supervised or mentioned in the Project Completion Report. These figures, then, are derived solely from the second method of resource allocation, those instances in which evaluation is isolated as a separate budget item. And these are compared with similarly derived figures from Agriculture.
4. Here there are differences. Twenty Agriculture projects intended to do evaluations in FY74; five (25%) separately budgeted resources for the task. Eight Education projects intended to do evaluations in FY74; none separately budgeted resources for it (Table 3). These differences are consistent over fiscal years, and are maintained currently. Between FY74 and FY78 46% of the Agricultural projects with evaluation intentions separately budgeted evaluation resources; the corresponding figure for Education projects is 11%.^{1/}
5. Another way to compare evaluation activity between sectors is to juxtapose figures for the portion of resources allocated to evaluation

^{1/} These figures do not include Project Related Training (PRT). The number of PRT components with separately budgeted evaluation sub-components is unknown.

Mr. R. Dosik

January 30, 1979

within those projects with separately budgeted evaluation components. This is the subject of Table 4. Here there are differences between sectors; but these differences are minor. In FY75, 1.52% of the base costs among education projects with separately budgeted evaluations, went toward doing evaluations; the corresponding figure for Agriculture: 1.5%. The proportion in Agriculture is slightly higher in FY76 and FY77; but lower in FY78. During the period between FY74-FY78, the proportion of separately budgeted evaluation resources was 1.14% in Agriculture and 1.04% in Education. In sum, no significant difference.^{1/}

Summary

6. The major distinction between evaluation in the Agriculture Sector and evaluation in the Education Sector has little to do with the degree of intention; or with the amount of resources devoted to it, when separately budgeted. The difference lies in the tendency of Agriculture projects to allocate resources to evaluation as a separate budget item at the time of Appraisal, and the tendency of Education projects to not separately budget evaluation resources.

^{1/} The average amount spent/project evaluation in Agriculture was higher (US\$.5 million) than Education (US\$.15 million); but this could be anticipated given the differences in the average project size.

cc: Messrs. Aklilu Habte (EDC)
Mats Hultin (EDC)
M. Cernea (AGR)

SH:th

Assistant Directors & Division Chiefs
of Agriculture & Rural Development
Montague Yudelman, AGR

January 29, 1979

An Example of Survey Problems in M & E Systems in
Agriculture & Rural Development Projects

See Jan. 25, 79

Attached is an interesting memo reflecting efforts to correct design deficiencies of a sample survey in a particular M & E system. In light of the recent discussions on how to improve such systems, you may wish to share this with your staff.

Attachment

TJDavis/cc

OFFICE MEMORANDUM

yellow
 ✓ S. Agrimelme
 cc - S - Energy, water & Telecom

TO: Mr. David Hughart (EWT)

DATE: January 29, 1979

FROM: Sydney A. Draper (AGR) *SAD*SUBJECT: Rural Energy Work Program Proposal

I think the approach you are developing to a rural energy work program makes good sense. Strengthening the Bank's capability in assessing the global contribution to energy from "non-conventional" sources, indicating more reliable energy profiles, including the non-conventional sources, for selected countries, and, setting-up a competence in understanding rural energy systems and likely innovations to improve these, would significantly strengthen the ad hoc approaches presently being taken in some rural development and forestry projects (see Mr. John Spears' list).

There would be obvious merit in maintaining the closest linkage with the proposed FAO/SIDA program with the objective of expediting a pipeline of projects. In addition to this proposed program, there are likely to be others (e.g., the USAID sponsored VITA activities and ODM sponsored Intermediate Technology Group activities) which would generate investment activities.

It seems to me that you have already made substantial progress in assembling broad data on usage patterns, the state of the art with respect to the innovations under contemplation, and some preliminary economic analysis of these. You may now consider strengthening the team by bringing in a practical man who has been involved in field work using "non-conventional" energy, and I would recommend Derek Earl for this purpose. Earl has had extensive experience in developing forest based energy systems, particularly charcoal, blended with sustained forest management including both natural and plantation forests. I believe his book, "Forest Energy and Economic Development" is the outcome of his Ph.D. thesis, which he undertook as a mature student after some 20 years of practical experience in temperate and tropical countries. For the past two or three years, he has been working on an FAO forest energy project in Ghana and I believe he is still with the project.

SADraper:jh

c.c. Messrs. Thoolen, Furst

DRAFT FY80 RURAL ENERGY WORK PROGRAM PROPOSAL

<u>Item</u>	<u>Program Management</u>	<u>(Man-Weeks)</u>	
		<u>Staff</u>	<u>Consultants</u>
		<u>43</u>	<u>20</u>
1	Policy Development & Program	38	20
2	Meeting, Liaison	5	--
	<u>Field Support</u> (number)	<u>34-98</u>	<u>46-140</u>
3	RD&D Projects (1-4)	6-24	6-24
4	Stove components (2-7)	6-21	12-42
5	Other components (2-7)	6-21	12-42
6	Sector memos (2-6)	16-32	16-32
	<u>Research</u>	<u>11-54</u>	<u>56</u>
7	Field survey/sector review (Stove studies)	0-43	--
8	Design principles	1	4
9	Extension techniques	1	10
10	Cooking practices & equipment	1	8
11	Urban Woodfuel Supply Options (Technology Assessments)	2	10
12	Solar Water Heaters	1	6
13	Solar Driers	2	6
14	Windmills	1	6
15	Mini-hydro	2	6
		<u><u>88-195</u></u>	<u><u>122-216</u></u>
	Total		

@ \$750/wk
 = \$92-162 thousand

ITEMS

NOTES

3 (min)
(incr)

Assumes loan request from Indonesia for energy RD&D
Three similar projects developed from work with
forestry projects, UNDP project, Colombia, Hawaii
and Nairobi meetings, or others.

4-5

Active forestry projects with money for stove or
other components in Tanzania, Nigeria, Niger,
Mali, India, Pakistan, and Philippines.

6

Memos to include,
(a) known facts on energy supply/use patterns in
traditional sector
(b) apparent problems related to non-commercial
energy use
(c) government policies and activities
(d) recommendations

7

Liaise with and contribute to FAO-CIDA and other
efforts to improve data on traditional energy use
and implications for deforestation, soil erosion,
etc.

8

Describe flows of heat and gases through a wood-fired
cook stove and analyze implications for choice
among basic types (massive "mud" stove, pottery, and
metal-shell), shape and dimensions of the important
parts, and choice of materials.

9

Review of past and on-going attempts to diffuse
use of improved stoves and develop implications for
project design.

10

Describe in terms relevant to stove design the
cooking practices and equipment typical of low-income
groups in selected areas.

11

Summary technical and economic analysis of major
options for supplying woodfuels to distant urban
centers. Technologies to be covered: earthen kilns,
small portable kilns, masonry kilns, retorts,
chippers, and pellet mills.

12-15

Assessments to summarize available information on
(a) technical characteristics
(b) performance experience, reliability
(c) manufacturers, manufacturing requirements
(d) costs, economic viability criteria
(e) areas/uses in which technology appears viable

TRAVEL ESTIMATES

Round trips - Weeks - Hundreds of dollars

<u>Items</u>	<u>Europe</u>	<u>S. Asia</u> (minimal program)	<u>E. Asia - Pac.</u>	<u>Africa</u>	<u>LAC</u>	<u>Wash.</u>
1-2	2-3-37	1-2-28	--	--	-	--
3	--	--	2-6-72	--	-	2-12
4	--	--	--	2-6-45	-	2-12
5	--	1-3-32	1-6-54	--	-	2-12
6	--	--	--	--	-	--
7	--	--	--	--	-	--
8-15	4-2-46	2-4-56	--	--	-	15-180
Sub-total	6-5-83	4-9-116	3-12-126	2-6-45	-	21-216
(incremental)						
3	--	2-6-64	2-6-72	2-6-45	-	6-36
4	--	2-6-64	2-6-72	6-18-135	-	10-60
5	--	1-3-32	1-3-36	3-9-68	-	5-30
6	--	--	--	--	2-6-38	2-12
7	1-4-36	1-3	0-3-	1-3-30	1-3-23	--
Sub-total	1-4-36	6-18-32	5-18-198	12-36-278	3-9-61	23-138

Minimal program	\$ 78,500
Incremental	<u>74,300</u>
Total	\$152,800

Ministerialdirigent Karl Osner
im
BUNDESMINISTERIUM
FÜR WIRTSCHAFTLICHE ZUSAMMENARBEIT

S. - Agriculture

53 BONN 12, DEN 29.01.1979
Karl-Marx-Straße 4-6
Postfach 12 03 22
Fernruf 5351
App. 304/53
Durchwahl 535

Mr Leif G. Christoffersen
Assistant Director for Rural
Development and Nutrition
Agriculture and Rural Development
Department
World Bank
1818 H Street, N.W.
Washington, D.C. 20433/USA

done
10/1

CC PARIS OFFICE
CHATENAY
MASONI
JAYCOX

file - non-governmental organizations

Ref.: Your cable, January 20, 1979

Dear Mr Christoffersen,

thank you very much for your cable. I agree on the procedure you proposed and will prepare as a first step meetings for Mr Thoolen with the central agencies of the churches as well as with our ministry around March 8 or 9. In order not to overload these meetings I would suggest to concentrate first of all on Brazil and Indonesia. To facilitate the discussions I will ask the central agencies of the churches to prepare some material on both countries along the following lines:

- volume of assistance in 1977 and 1978
- structure of partnerorganisations
- target groups
- instruments and methods of assistance
- sectoral structure of assistance
- types of projects in areas of main concern.

You will get this material around on February and I would appreciate if you could kindly provide us with similar informations in advance. To prepare the time table for the meetings proposed I would be thankful if you could let me know the travel schedule of Mr Thoolen as soon as possible.

Sincerely yours

Karl Osner
Karl Osner

INCOMING MAIL UNIT
1979 FEB -8 AM 11:11
RECEIVED

Ministerialdirektor Karl Osner
im
BUNDESMINISTERIUM
FOR WIRTSCHAFTLICHE ZUSAMMENARBEIT

Mr Leif G. Christoffersen
Assistant Director for Rural
Development and Nutrition
Agriculture and Rural Development
Department
World Bank
1818 H Street, N.W.
Washington, D.C. 20433/USA

Ref.: Your cable, January 20, 1979

Dear Mr Christoffersen,

Thank you very much for your cable. I agree on the procedure you proposed and will prepare as a first step meetings for Mr Thoolen with the central agencies of the churches as well as with our ministry around March 1 or 2. In order not to overload these meetings I would suggest to concentrate first of all on Brazil and Indonesia. To facilitate the discussions I will ask the central agencies of the churches to prepare some material on both countries along the following lines:

- volume of assistance in 1977 and 1978
- structure of partner organizations
- target groups
- instruments and methods of assistance
- sectoral structure of assistance
- types of projects in areas of main concern.

You will get this material around on February and I would appreciate if you could kindly provide us with similar information in advance. To prepare the time table for the meetings proposed I would be thankful if you could let me know the travel schedule of Mr Thoolen as soon as possible.

Sincerely yours

Karl Osner
Karl Osner

RECEIVED
1979 FEB -6 AM 4: 17
INCOMING MAIL UNIT

2. Agriculture
29.01.1979
83 BONN 15, DEN
Karl-Marx-Strabe 4-8
Postfach 12 03 22
Femur 83 21
App.
Dutchwafel 8 30

cc PARIS OFFICE
LAVOIX
MASNI
CHATELAIN
this non-governmental organization

Mr. F.L. Hotes (AGRDR/CPS)

January 29, 1979

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

TERMS OF REFERENCE - Mission to Denver, Colorado

1. You will proceed to Denver, Colorado, on January 30, 1979, for meetings on January 31 and February 1 with U.S. Bureau of Reclamation staff, and to attend meetings on February 2 and 3 of the Executive Committee, Irrigation and Drainage Division, American Society of Civil Engineers.
2. At the Bureau of Reclamation, your discussions should cover planning and feasibility study standards for irrigation and drainage projects, feasibility and final design-level cost estimating procedures, and reliability experience; surface and subsurface drainage and deep-well design standards, specifications, and performance; canal losses; operation and maintenance costs; and selected aspects of programs to help assure the safety of dams.
3. Upon your return to headquarters by February 5, 1979, you will arrange for dissemination of pertinent technical information obtained from the Bureau and from the ASCE I&D Executive Committee meeting to Bank staff concerned.

 F.L.Hotes:rm

cc: Mr. Yudelman (AGR/CPS)

NRIC

January 29, 1979

Dr. M.F. Purnell
Technical Officer
Land Classification
Soil Resources, Management &
Conservation Service
FAO
Via delle Terme di Caracalla
00100 - Rome
ITALY

Ref: AGL-801 LA 2/6 Mtg. 79

Dear Dr. Purnell:

Thank you for your January 15, 1979 letter and the information on the forthcoming Consultation on Land Evaluation Criteria for Specific Land Uses (Irrigation).

I will need in presenting the Bank paper the facilities of a 35mm projector and screen for showing at least one but not more than three slides concerning needs in land selection for irrigation. I assume that this equipment will be made available by the FAO office.

Should an electronic public address system be used to facilitate presentation of papers, I would appreciate a microphone stand arrangement that will accommodate my height which is 195 centimeters.

As advised by the Bank telex dated January 26, 1979 to FAO/CP, reservations have been made for the Bank delegation to stay at the Hotel Hassler.

Messrs. Hotes, Collins, and I are looking forward to meeting the many Consultation participants and exchanging views on this important subject.

Yours sincerely,

W.B. Peters
Soils Specialist
Agriculture and Rural Development
Department

cc: Messrs. Pickering, Hotes, Collins

S. Aguiulhne

January 29, 1979

Mr. Donald Sherk
Room 5410
Department of the Treasury
Pennsylvania Ave. & 15 St., N.W.
Washington, D.C. 20220

Dear Mr. Sherk:

Maat
Attached is a clearer copy of the Poverty Target Group Estimates which appeared in the Weaver Report.

As we discussed these should not be referred to directly or for comparison purposes between countries. They also are in the process of being updated by the country economists. I also attach an internal statement relating to and updating of agriculture and rural development lending and its poverty impact which was prepared by my research assistant.

Sincerely yours,

Ted J. Davis
Chief
Rural Operations
Review & Support Unit

ESG/cc

OFFICIAL FILE COPY

yellow

OFFICE MEMORANDUM

TO: Mr. G. Donaldson, Chief, AGREP

FROM: Wilfred L. David, AGREP *WD*

SUBJECT: Agricultural Development, Economic Transformation and the New International Economic Order

DATE: January 29, 1979

S. Aquilino

1. My research for the WDR II background paper as well as current activities for the staff working paper have led me to the conclusion that there is an important aspect of the agricultural transformation possibilities to which the Bank does seem to have devoted much attention. This refers to issues and prospects for the New International Economic Order (NIEO). As you would know, at the Sixth and Seventh Special Sessions of the UN General Assembly (1975, 1976) the Nations of the "South" called on the Nations of the "North" for the establishment of the NIEO through the transformation of international economic relationships. Out of those two sessions came the "Declaration on the Establishment of a NIEO" and the "Charter on Economic Rights and Duties of States". Both these documents, as well as reports of subsequent conferences, contain a large body of statements about the prospective role of the agricultural sector as well, as the role of international bodies such as the World Bank, F.A.O., UNCTAD, etc.

2. As far as I know the Bank has not taken a position on this issue. More particularly, the implications for agricultural development have not been studied. Since this issue is likely to dominate international discussions for some time to come, I feel that the relevant policy aspects as well as implications for future Bank lending to the agricultural sector should be carefully studied.

3. I would like to recommend, therefore, that consideration be given to the preparation of a background or policy paper on this important subject. Since the majority of our client countries are "open dues economies", new developments in the international field will continue to shape the context of agricultural lending for some time to come.

4. To the extent that this proposal is feasible in terms of the Division's work program, I would very much like to be involved. For your information, I am enclosing three papers of mine covering some more general aspects of the NIEO.

Enclosures

cc: Pasquale Scandizzo, AGREP

Files

January 29, 1979

Jim Goering, AGREP



Tropical Root Crops: The Nutritional Dimension Revisited

1. Pursuant to my letter to David Daprice of January 24 on this topic, David called me this morning to indicate that he felt his conclusions on nutritional balance among low-income TRC eaters, as stated in the TRC paper, are absolutely valid. He made the following additional points:

- The comment in the TRC paper suggesting "a handful of groundnuts per day" with cassava flour is from Latham, an acknowledged expert in applied nutrition.
- The analysis of the N.E. Brazilian Survey (see pp. 44 of the TRC paper) was cited in American Journal of Clinical Nutrition, Vol. 30, pp. 955-964, June 1977. Raw data for this survey were published by the Getulio Vargas Foundation in 1970. The above reference will be added to the TRC paper as a footnote.

cc: Messrs. G. Donaldson
A. Berg

JGoering:mw

OFFICE MEMORANDUM

Central File

S. Agriculture

TO: Mr. Ben A. Thoolen

DATE: January 26, 1979

FROM: Michael Baxter *WB*SUBJECT: Up-date on proposal for a storage-retrieval system
for features of rural development projects.

1. The memo to you of January 11, 1979 that broached the possibility of establishing a storage-retrieval system for innovative/distinctive features of rural development projects has been circulated within AGR and has received a favorable response. The general feeling seems to be that such a system would meet an existing demand and that it would be easier both to implement and to use if it were tied to the existing RORSU data bank.

2. I have discussed the proposal in some detail with Mr. Deboeck of RORSU and we agree that the system would most usefully be implemented in a number of distinct stages. These stages would be: (i) delineate the key features of each project and enter these with the appropriate project on the RORSU data file; (ii) for each feature, determine keywords; (iii) create abstracts of each feature. We believe that the results of stages (i) and (ii) would in themselves constitute an effective search/retrieval system that would meet the objective of isolating Bank experience in the project design and implementation of particular, sought-after project strategies. Once the initial system based on features and keywords has been established, a decision could be made whether to go ahead with stage (iii) (the creation of abstracts for each feature).

3. A next step to further this proposal would be the preparation of a detailed system proposal which would include staff and system cost implications, the tentative structure of the index, trial operation of search procedures, and examples of system output. With such a report available, a decision could be made whether to implement a storage-retrieval system.

4. I believe it is important at this stage of preparing a detailed report to involve formally RORSU, particularly Mr. Deboeck, not only because of the desirability to tie-in the proposed system to the RORSU data bank or Mr. Deboeck's technical skill, but also because if the proposed system were to be established it would seem to fall more within the field of RORSU than of this Division. Consequently, I suggest that RORSU be approached to gain support for at least the preparation of detailed system proposal and, if the support is forthcoming, to ask Mr. Deboeck to help work on the proposal.

MBaxter:caa

cc: Messrs. Deboeck (RORSU), Kulatilaka/Abraham (AGR), Bloomfield (ADM)

S - Agriculture

Mr. S. J. Burki, Chief, Policy Planning Division, DPS

January 26, 1979

Graham Donaldson, AGREP

Tropical Root Crops and Rural Development

1. Attached is a marked up copy of the above paper, revised according to our understanding of the decision made at the OVP review of the paper on January 17. The essence of this revision is to integrate into the summary and conclusions the implications of the paper for Bank operations. This we have done in paras. 1.29 - 1.39. Other minor changes are indicated in red on pp. 3,5,10,12,13,14,15,16, 38,48 and 50.

2. We shall proceed with plans to issue this paper as a Bank Staff Working Paper.

- cc: Messrs. M. Yudelman, AGR
- H. van der Tak, PAS
- D. Pickering, AGR
- J. Goering, AGREP

JGoering:ga

*non-Regional
File*

OFFICE MEMORANDUM

S - Agriculture

TO: Distribution Below

DATE: January 26, 1979

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

SUBJECT: Expert Consultation on Land Evaluation Criteria for Specific
Land Uses to be held at FAO, Rome, February 27 - March 2, '79

In order to coordinate the views of the Bank's representatives attending the above (Messrs. Peters, Hotes and Collins), I suggest that we meet in my office on Wednesday, February 21, at 10 AM (i.e. immediately following the 9:30 AM Advisors' Meeting). The main topic will be the proposals incorporated in FAO Soils Bulletin No. 32---"A Framework for Land Evaluation", copies of which will be sent to you as soon as they become available.

JCCollins:rm

cc: Messrs. Hotes, Peters, Collins, Donaldson, Coulter, ffrench-Mullen

OFFICE MEMORANDUM

yellow
s. Agriculture

TO: Distribution Below

DATE: January 26, 1979

FROM: Montague Yudelman, Director, AGR *m.j.*SUBJECT: Interagency Meeting on Food Production
February 22 - 23 in Washington, D.C.

1. In response to the "Mexico Declaration" of the World Food Council, the Bank has agreed to convene a meeting of selected multilateral financing institutions and development agencies to discuss constraints on increasing investment for food production and nutrition. Preparations for this meeting, to be held at the Bank on February 22 and 23, 1979, are underway. Some background to the meeting is presented below.

Background

2. The World Food Council, at its recent meeting in Mexico, proposed a program of consultations among various groups -- developing countries, developed countries, aid donors and the major international development agencies -- to identify the major obstacles to increased food production and to work out specific agreements to overcome them specifically:

- the Development Assistance Committee of the OECD has discussed the issues in Paris;
- the secretariat of the OPEC Special Fund will coordinate the views of the OPEC countries at a February meeting in Sudan;
- The Socialist members of the World Food Council -- China, the German Democratic Republic, Poland, Yugoslavia and Cuba -- will have an opportunity to give their views and recommendations on the world food problem;
- meetings of developing countries over the next few months will take place in four regional groupings -- Africa, East and West Asia and Latin America -- in cooperation with the Development Banks and United Nations Commissions for each region.

An informal coordinating session will review the reports submitted by the sponsors of these consultations with a final report submitted to the World Food Council's Ministerial meeting in fall 1979.

The Bank's Role

3. At the request of the WFC's Executive Director, Mr. Maurice Williams, the Bank is organizing a meeting of the regional development banks, FAO, IFAD and UNDP to address specific ways of increasing financial flows and of eliminating constraints to increased food production and better nutrition in developing countries. In addition to these institutions which will all be represented, eight outside experts will be attending the meeting in a private capacity. A list of all participants is attached. The WFC suggested that the meeting focus its attention on:

- (a) increasing the flow of external assistance for food production and nutrition;
- (b) increasing the internal priority for food and nutrition within developing countries; and
- (c) increasing the number and effectiveness of projects and programs in the areas of increasing food production and nutrition.

The meeting is expected to contribute ideas for the WFC secretariat which in turn will collect the views expressed at the various other consultations for their final report to the Ministerial meeting of the WFC.

4. While in Washington, the conference participants will be available for such consultations as you might find appropriate. In particular, questions about the regional meetings being run as part of the overall WFC exercise might be discussed at that time. If regional staff wish to attend, nominations should be sent to my office as quickly as possible as the size of the conference room limits the number of observers who can be seated.

Distribution List

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Chenery
Clark
Damry

Attachment

CLewis/sm

Participants at February 22-23 Meeting on
Food Production and Nutrition

(as of January 31, 1979)

United Nations Development Programme

Mr. Gordon Havord, Acting Director
Division for Program Development, Support and Evaluation

African Development Bank

Mr. G.E. Gondwe, Vice President Operations
Mr. G. Dossou, Director of Projects

Asian Development Bank

Dr. E.F. Tacke, Manager, Rural Development and Agricultural Credit Division
Agriculture and Rural Development Department

Inter-American Development Bank

Mr. Jose D. Epstein, Manager, Plans and Programs Department
Mr. Mauricio Herman, Chief, Agricultural Division, Project Analysis Dept.
Mr. Oscar O. Fuster
Mr. Jose Kohout
Mr. James Taylor

International Fund for Agricultural Development

A.A. El Sherbini, Chief, Planning and Programming Division,
Economic and Planning Department

World Food Program

Joseph Moscarella, Economic Advisor

Food and Agriculture Organization

Mr. B.S. Mahajan, Adviser, Special Development Subjects
Development Department

Outside Experts

Dr. Walter P. Falcon, Stanford Food Research Institute, USA
Dr. Francis Idachaba, University of Ibadan, Nigeria
Dr. John Mellor, International Food Policy Research Institute, USA
Dr. Mubyarto, University of Gadjah Madah, Indonesia
Dr. Eric Thorbecke, Cornell University, USA
Dr. Samar Sen, India
Dr. Lucio Reca, Argentina
Dr. C. Peter Timmer, Harvard University, USA

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



ORGANIZACION DE LAS NACIONES UNIDAS
PARA LA AGRICULTURA Y LA ALIMENTACION

*Acc. file. gen. l.
for March Rome
meeting*

S. Lual - Dev.

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

Via delle Terme di Caracalla, 00100-ROME

Cables: FOODAGRI ROME

Telex: 61181 FOODAGRI

Telephone: 5797

Ref. ESH UN 10/65 (c) Ext.

In your answer please quote

JAN. 25 1979

Dear Miss Boskey,

Kindly refer to Mr. D.J. Walton's letter of 27 November 1978 (and subsequent cable dated 29 December 1978) inviting you to attend the meeting of the Working Group on Programme Harmonization which will now be held at FAO Headquarters from 12 to 14 February 1979. The meeting will take place in the German Room (C263/269) at 09.30 hrs.

...

- see above
I am pleased to send herewith a copy of the working paper on Rural Development Programme Harmonization for the consideration of the meeting.

Yours sincerely,

Rafael Moreno
Director

Human Resources, Institutions and
Agrarian Reform Division

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

OFFICE MEMORANDUM

DATE: January 25, 1979

TO: Mr. Richard Dosik, (CPSVP) and Task Force On
Monitoring and Evaluation Members

FROM: Michael Cernea (AGR) *MCernea*

SUBJECT: Monitoring & Evaluation Skills Relating to Sample Survey and
Data Collection

1. During the last meeting of our Task Force, the issue of the special skills needed within the Bank for strengthening project M & E came up. The attached notes illustrate some of the typical problems we are already facing in assisting the borrowers for M & E and the type of skills which are required from Bank staff working on M & E.

2. In M & E, a basic data generation instrument is the sample survey. Although apparently simple, a correct design of the sample and of the questionnaire requires survey design knowledge, sociological knowledge, and statistical knowledge. In most cases our Bank staff have different expertise and therefore it is difficult for them to assess whether proposals from the borrowers for evaluation surveys are correct or not.

3. The attached memos refer to an ongoing evaluation proposed by the borrower. We reviewed the proposal in RORSU and we found it fundamentally deficient on several grounds, basically related to sampling biases and survey design. Subsequent to this memo, EMENA division in charge of this project required one of its supervision missions to assess the survey experience of the proposed M & E entity and found some additional major weaknesses, threatening to introduce non-sampling errors on top of the sampling errors. Therefore, the proposal was returned to the borrower.

4. I feel that the errors uncovered in this specific case are more or less typical for many other proposals on monitoring and evaluation studies. The significance of the attached notes goes beyond the specific case within which they were written. You may wish to derive your own conclusions about that and about the need to have in the Bank the appropriate skills and to ensure the effectiveness of M&E efforts.

Attachment

MCernea/mhm

cc: Messrs. Blaxall, Hendry, Stewart, Bamberger, Dunkerly, Kordike,
Dosik, Ruth

cc: Messrs. Yudelman, Christoffersen, Pickering, Davis, Turnham

OFFICE MEMORANDUM

TO: Mr. Richard Frank (through Ted J. Davis)

DATE: February 9, 1978

FROM: Michael Cernea (AGR) *M.C.*SUBJECT: Yugoslavia - Review of Proposal for Monitoring and Evaluation System of the First and Second Agricultural Credit Projects

1. I reviewed, per your request, the design of the system for monitoring and evaluation of our two agricultural credit projects in Yugoslavia as proposed by the Institute of Agricultural Economy from Belgrade.
2. Despite certain merits, the proposal leaves much to be desired. The research program consists basically of a sample survey for evaluating the projects' impact and of a budget required for this exercise. The proposal doesn't contain anything which would ensure project monitoring and fails to make the distinction between monitoring and evaluation. As a matter of fact, the proposal indicates (page 10) that the Institute has never been engaged in monitoring research so far.
3. The proposed research would not be capable to produce any information about the activities of the field credit agents, applications for credit, possible delays in the evaluation of these applications, problems in credit delivery, etc. Therefore, if this exercise is indeed expected to monitor, then substantial changes in the data collection design should be requested.
4. The principles and definitions postulated as the rationale for evaluation are not matched by the actual research design. The design proposed for the sample does not appear to have a real concern for minimizing sampling bias and errors. More specifically, my observations are:
 - 4.1 First, the sample design is defficient. It seems that the authors suggest to use three or four percent of credit beneficiaries as a "special sample for each type of investment" (page 7), i.e. for land development, farm mechanization, vineyards, fruit production, dairy farms, etc. However, the numbers of credit beneficiaries vary very much (for instance, 5,000 credits for orchards and only 400 for green-houses and 800 for pig fattening). A similar "quota" of three or four percent sample would be, in certain cases, too small and unreliable, while for other types of credits it may be too large.
 - 4.2 Second, I am puzzled by contradictory figures about the total size of the samples: the "supplements to technical proposals" indicate that about 800 farms would be included in the yearly sample of individual farms, while the control group would consist of 800 holdings

as well (see page 1). However, in the main proposal it is stated: "we consider that, on average, about 2,500 farms per year would be included in the sampling of individual farms. The 'control' group would consist of about 2,000 farms" (see page 7). Which figures are going to be used?

Incidentally, there is no discussion of what is considered to be a tolerable sampling error to justify either one of the sample sizes. Obviously, the sampling error would be different for each subsample per type of investment credit.

- 4.3 Third, I strongly doubt that "control" samples are feasible in this context and that it would be possible to match several samples of credit beneficiaries with identical groups of farmers who do not receive credit. This will enormously complicate the methodology and the logistics of the exercise, with absolutely uncertain results (at a substantial cost increase). I suggest dropping the control groups.
- 4.4 Fourth, sampling errors will be compounded by non-sampling errors, like memory bias, for which plenty of room is allowed. The proposal indicated that the survey will take place between December 20 and January 31, a period of six weeks which includes Christmas holidays. This means that the entire evaluation will be restricted to a one-shot survey once a year, which can hardly yield the desired information. Such a design would rely primarily on the (a) recollection of farmers and on (b) their willingness to declare what they have done with the credits, how they have used them, and what were the results of these uses in their farm operations. To reconstruct at year-end what happened with credit over the entire year is extremely difficult, if at all possible. This would introduce a very large memory bias into the survey and I do not see any safeguards in the proposal to prevent the results from being misleading.

I believe that a different approach should be taken, namely one which would enable the evaluation study to observe with continuity the actual credit behavior of the beneficiaries. Instead of a one-shot survey, during which each sample unit is visited for only a few hours and hastily interrogated, I believe that more in-depth reaching procedures should be used. For instance, an alternative pattern could enable the researchers to visit the beneficiaries several times over the agricultural seasons at the critical moments and thus get a good understanding of what actually is going on in the farm and what developments are triggered by the credit, what do the farmers purchase with it, whether there are misuses of the credit.

Participant observation, farm budgets and other procedures could be used. Unless information on the credit behavior of the farmers and on the intervening variables would be collected, a real understanding of credit impact cannot be obtained. A reduction in the sample size may be acceptable as a trade-off for analytical depth in evaluation assessment.

- 4.5 Fifth, the credit impact study should be able to grasp how the credit was absorbed into the very structure of the small farm operations, its consequences on use of labor resources, productivity, consumption etc. This requires in-depth case/farm studies, rather than only sample surveys.
- 4.6 Sixth, the staffing for the proposed program doesn't seem appropriate. The three or four senior staff of the Institute intend to be involved only for two months over the entire year; the same fragmentation for the additional six or more "external experts". Why so many people for so little time each? This fragmentation may be very detrimental. Wouldn't it be preferable to have at least two or three researchers working full time year round on that evaluation? A sociologist might be extremely useful as well - none is listed among the 12 senior staff proposed.
- 4.7 Finally, the cost of this proposal is inflated by "travel to foreign countries for consultations" for the Senior Staff of the Institute. There are in Yugoslavia professional statisticians who could do an excellent job at probably lower costs, and without junket trips.

MCernea/dc

cc: Messrs. von Pischke, Schertz, von Pogrell, Garff, Spall, Yudelman, Turnham

SFN report, June '78

YUGOSLAVIASECOND AGRICULTURAL CREDIT PROJECT

(LOAN 1477-YU)

Monitoring and Evaluation Survey

1. The mission met for several hours with Professor S. Popovic, Mr. S. Milic and Miss E. Gogic of the Agricultural Economics Institute in Belgrade. The mission was informed that the survey design would be available in Serbo-Croatian by the end of April and that the English translation including the field questionnaire would be available by about 7 May. The Institute has allocated four of its high level staff to the study, including the three named above and Miss J. Stanovic, who heads field survey activities. The part-time services of a Mr. Dolenc, now of Ljubljanska Banka and formerly with IBRD, have been agreed in principle, and the Institute also expects to confer with Mr. K. Harding of ULG Consultants, Warwick, UK, regarding survey design and implementation.

2. Broad-ranging discussions with these Institute officials concerning the monitoring and evaluation of private sector borrowers gave the mission serious cause for concern. While the mission made few pointed remarks, it is hoped that its persistent questioning may be reflected in an improved survey design proposal by the Institute. The Institute did not appear to have devoted much thought to the problem of non-sampling errors, and also not to have taken elementary precautions normally used by social scientists in survey work. Specifically:

- a) Institute officials have no plans for pretesting the questionnaire. Institute officials say that the questionnaire has been developed from a standard format of more than 20 pages evolved over 15 years in its work with agricultural agencies in Yugoslavia. Only about 15% of the material is original. The mission's view is that the Institute should be concerned with the integrity of the questionnaire as a whole (question coverage and sequence, and cross checks for accuracy), not simply with the nature of questions taken individually.
- b) the Institute has no formal system for supervision and verification of data collection. Institute officials say that agronomists working as extension officers for kombinats, where such are available, will be used as enumerators. Most of these enumerators would apparently be Institute "regulars" for field surveys, on a part time basis. While some level of supervision was reported, Prof. Popovic and his colleagues appeared unable to quantify frequencies, spans of control, or percentages of sample members involved in verification by supervisors.

The mission's view is that there should be a formal system of supervision of enumerators to ensure a degree of control over administration of the questionnaire and over the reporting of replies by enumerators. This sort of supervision would also permit timely verification of results which appeared inconsistent, or timely efforts to collect missing data.

- c) Institute officials volunteered that the information that will be gathered will be greater than that required for fulfilling its terms of reference. The Institute says that the data collected on the 12 page questionnaire will be the property of VB and will not be used without VB's permission. However, VB's permission is likely to be asked and VB may be able to charge for access to its data. The mission's view is that this aspect of research design indicates poor preparation by the Institute, and is inefficient.

3. Other areas of concern explored by the mission included:

- a) A lack of field coding of the questionnaire.
Institute officials say that it has never used field coded questionnaires which could be used directly as a basis for computer input. Rather, questionnaires filled in by enumerators are used by Institute clerks to code computer input forms, which are then put on tape. Institute officials say that this step permits consistency checking by Institute staff. The mission's view is that the transcription and possible adjustments involved lead to an additional source of non-sampling error. The mission also questions whether consistency checks are most economically and rigorously conducted by computer screens, or visually by clerical staff.
- b) An unrealistic timetable for system implementation.
Institute officials indicated that fieldwork could begin in July. This implies that the training of enumerators in short seminars would take place in June. The mission feels that at least six weeks would be required for VB and Bank comments on the survey design, including the transmission of materials to and from Washington, and review by a foreign consultant. Assuming the English translation is available by 7 May, the final design would be unlikely to be agreed before the second half of June (Note: Institute's draft has not been received so far). The recruitment of enumerators would then require several weeks at the least. Arrangements would have to be made for organizing training seminars for enumerators. Only with the completion of these steps could fieldwork begin, and a July target date seems unrealistic.
- c) VB is to be responsible for data collection and sample selection.
VB is to employ the enumerators and will be solely responsible for their activities. VB will also be responsible for sample selection, presumably through instructions to enumerators. This type of activity

is entirely new for VB, which does not appear to have the professional expertise required for successful implementation. Institute experience will be available on an advisory and part time basis. The mission is of the view that given VB's lack of experience, and a low level of field supervision, sampling and non-sampling errors are likely to be significant, especially in the first year. The mission also questions how long it may take VB to develop an analytical capacity efficient enough to permit timely verification of inconsistent data, or follow up on missing data.

d) VB is to undertake data analysis.

The Institute and VB have agreed to use VB computers for data analysis, and also to use VB staff for the interpretation of statistical results. Institute staff will be involved in these activities, but primarily in an advisory capacity. While the mission concurs that this approach could build within VB a very real understanding of project performance at the field level, it also feels this formula seriously underestimates the complexity of the task of data manipulation and interpretation. In addition, the types of computer programs commonly used for social science purposes are quite different from those with commercial applications, and the establishment of the required data handling capability within VB could be a formidable task. Mr. Nikolic of VB indicated that he would be willing to increase his staff for the task by adding one suitably trained person. The mission does not believe that professional analyses of farmer performance are likely to be forthcoming from the arrangements outlined.

e) Time required for field interviews.

Institute officials did not have any precise specifications concerning the number of sample members which would be surveyed by one enumerator, but indicated after discussion that one enumerator per 15-20 farmers might be realistic. The Institute also indicated that data collection would be concentrated in three or four two week periods each year, at critical times relative to the types of information or tasks required. The mission questions whether it is reasonable to expect an enumerator to visit 20 farmers within three week ends and 10 evenings, working on a part time basis, if each interview would take the two or three hours indicated. Institute officials pointed out that their enumerators usually require this long for an interview because of the broad-ranging discussions carried out as required by social conventions relating to visits to farms by extension agents and other interested parties, and by the depth of detail desired for survey purposes. The mission questions the quality of information an enumerator is able to record on his third farm visit on a Saturday or Sunday.

- f) Farmer participation is expected to approach 100% of those selected as sample members.
Officials of Institute and of VB indicate that a condition for receipt of a loan under the project is the provision of information. Farmers will not be given the chance to be dropped from the sample on a voluntary basis. Institute and VB officials indicate that fear of taxation is not a problem in data gathering in rural Yugoslavia because of the structure of the tax system, and Institute staff indicate that private farmers are pleased to have visits from enumerators who are also extension agents of social sector kombinats. The mission is not in a position to evaluate this situation, but Professor Popovic's estimate that 90% of the sample will yield usable data seems high for a survey of the complexity and five year time period envisaged, and for the level of field supervision of enumerators envisaged, even if only data recording and processing problems are considered. Compulsory participation suggests a decline in data quality if there are any reasons for sample members to be less than completely open, which there usually are.
- g) The Institute seriously considered drawing a separate sample every year.
The Institute has now decided that it would be preferable to select a sample from each year's tranche of borrowers, and to survey that sample for the required period as project-supported investments are undertaken and mature. The alternative approach of drawing a fresh sample every year would have greatly increased data analysis requirements and problems of consistency.
- h) Institute officials did not volunteer bases for sampling and stratifications, other than to say that randomness would be ensured.
These aspects would appear to be basic to any research of the type envisaged, and to be natural topics of discussion by researchers with the long experience accumulated in the Institute.
- i) The Institute intends not to use a rigorous control group methodology.
Institute officials feel that the control group requirement is too rigorous and complex within the budgetary resources which are to be made available. The Institute's desire to omit a control group may be technically correct, but not necessarily for the reasons given by the Institute. The control group would properly consist of a sample eligible for subproject loans who did not receive loans, which might present formidable problem of identification and continuity over the survey period. The mission understands that this was the basis for Mr. Cernea's reservation on control group use expressed in his memo of 9 February to Mr. Frank reviewing draft proposals for the monitoring and evaluation system. Rather than have a control group which mirrors the experimental group, the Institute is considering using a control every other year, or using as the control group data gathered by the Federal Bureau of Statistics. The mission feels

that without a control group the "without project" basis for comparison could not be incorporated in the exercise, which would narrow considerably the scope and utility of the activity. However, the possibility of using Federal Bureau of Statistics data should be explored as a means of analytical economy. The level of disaggregation of Federal statistics should be carefully reviewed for this purpose.

4. Mission's Conclusions and Recommendations.

- a) The Institute of Agricultural Economics appears to be of a dubious competence to undertake the monitoring and evaluation exercise as conceived by the Bank, but that judgement on this matter is not appropriate until the design, now overdue, is available and analyzed.
- b) The Institute is a well established part of research in agricultural economics in Yugoslavia and that its self-confident head commands considerable respect within Yugoslavia; making it difficult for the Bank to play a significant role in improving the Institute's performance in a field in which it has been a major factor for more than 10 years.
- c) the Bank signalled to the Institute and to Vojvodjanska Banka (VB) that the Bank's standards were quite low when it responded positively to the interest rate study undertaken in 1976-77 by the Institute under Loan 1129-YU. The mission feels that the level of expertise, both professional and secretarial, brought to bear on that study is indicative of the type of analysis which may be expected from the Institute's activities in the Bank-supported project monitoring and evaluation.
- d) the philosophical basis for striving to minimize sampling and non-sampling errors rests on the assumption that accurate information commands a premium as a decision-making input. Where such input requirements do not exist or are laxly applied, accurate information does not command a premium or may trade at a discount. In such cases, sloppy research constitutes a consistent corollary.

5. The mission recommends that the monitoring and evaluation field survey and data analysis design, presently under preparation by the Institute of Agricultural Economics in Belgrade be very closely scrutinized by the World Bank as soon as it becomes available, and if the design is found defective in any material respects, the decision to proceed with this project element should be reconsidered. Monitoring should not be undertaken if the information obtained is likely to be of little value.

OFFICE MEMORANDUM

S. Agriculture

TO: Mr. R.J. Goodland (PAS)

DATE: January 25, 1979

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

SUBJECT: Aquatic Weeds

1. For some time we have been dissatisfied with the state of knowledge on the control of aquatic weeds in water resource and irrigation projects, especially the dissemination of that knowledge in useable form to project managers. Your most recent memorandum on subject matter, dated January 18, 1979, indicates to me that we should get together to coordinate Bank efforts and thoughts on the aquatic weed control problem.
2. Over the past three years we have reviewed several good references and seminar reports on this matter and have accumulated some useful background material. We also have talked to some knowledgeable experts. There seems to be no overall easy solutions. Some weeds can be controlled easily with chemicals, but the same solution elsewhere may not be economical, permissible or effective. One of the more promising, but more complex, approaches involves biological control by proper mixes of fish. Mr. Lucian Sprague, Fisheries Specialist (AGR), has reviewed some of the current literature on this. Fishery experts and aquatic biologists must work together in developing solutions for specific cases, and such solutions can be attained only over a period of years accompanied by continuous monitoring, research and management. A guaranteed solution apparently cannot be prescribed in advance.
3. While a vast amount of literature on the subject exists, much is repetitive and much is speculative. Project managers and their staffs simply do not have time to screen all this literature, even that available for one weed such as water hyacinth. Nor do they have sufficient staff, time or funds to conduct applied research on the subject in most instances. We have been considering the feasibility of the development and publication of a series of aquatic weed manuals for various ecological regions of the developing world, similar to those developed for the State of Florida (we have a copy), and have discussed this in a preliminary way with the University in Gainesville. Some people in AID, and the National Academy of Science also, have expressed interest in the possibility of jointly financing such an undertaking by means of contracts with various groups of experts, under the overall guidance of two or three individual experts and the participating agencies. We have had no time to pursue this further than "talk", but still believe there may be merit and high practical utility in such a manual directed towards project needs, including some ideas of costs. I would like to discuss this with you at your convenience.

Mr. Goodland

-2-

January 25, 1979

4. Regarding Bangladesh, I wonder how much money needs to be spent on an expert who can probably only tell us that mechanical harvesting, with emphasis on readily available hand labor, is the solution to the Bangladesh water hyacinth problem? The NSF report tells us that harvesting water hyacinth for other uses is not yet very feasible in most cases. The Bangladesh answer may well be "periodic maintenance", which GOB does not seem to understand in any sense of the term.

FLHotes:rm

cc: Messrs. Pranich, Tennent (ASP); Lee (PAS); Pickering, Sprague, Collins (AGR/CPS)

OFFICE MEMORANDUM

P - Monitoring & Evaluation

S - Agriculture

TO: Mr. Richard Dosik, CPSVP

DATE: January 25, 1979

FROM: Ted J. Davis, AGROR

SUBJECT: Analysis of Manpower Requirements for M & E Systems in Agriculture and Rural Development Projects

The attached table shows a projection of the manpower requirements necessary to strengthen monitoring and evaluation of those agriculture and rural development projects expected to be approved in the period FY80 to FY83.

The basic assumptions in making these projections are:

- (1) It is essential that a M & E component be an integral part of project preparation and appraisal, and that its design should not be delayed until supervision. This would substantially reduce the delays currently experienced in making M & E effective (see Progress Report on M & E).
- (2) Since M & E is an essential management tool, preparation and appraisal of M & E should be subjected to the same norms and standards as applied to other project components.
- (3) Adequate preparation and appraisal of an M & E component requires at least 5% of the average manpower time spent for these functions. Since most AGR projects absorb about 90 manweeks for pre-appraisal and appraisal, about 4.5 manweeks would be required for preparation, pre-appraisal and appraisal of an M & E component.
- (4) Based on past RORSU experience supervision of adequately designed and appraised M & E systems absorbs roughly 10% of the average time spent for supervision of projects. Since the average manpower time spent for supervision of an AGR project is about 15 manweeks, supervision of M & E for AGR projects would require 1.5 manweeks per project per year.
- (5) Although M & E has been included in a growing proportion of the AGR projects approved since FY74 (in FY74 about 40% of the AGR projects included M & E, while in FY78 some 76% did), the large majority of M & E components in AGR projects have either not been designed or are inadequately designed. About 55% of the AGR projects with M & E approved in FY78 neglected to specify the staffing and other resource requirements for M & E. In consequence, an extra effort will be required as part of supervision of those projects, in order to get the M & E components better prepared and to make them operational. We assumed that such extra effort would be undertaken only for the FY78 and FY79 projects with insufficiently designed M & Es; and that this would take only about two manweeks per project in FY80 and one extra week of supervision in FY81.

The most recent projections from P & B of the number of AGR projects to be approved in the period of FY80-83 were used to estimate the number of AGR projects with M & E. It was assumed that from FY79 to FY81 about the same proportion (76%) of the AGR projects as in FY78 would include M & E; and that with the growing complexity and larger proportion of rural development projects this would increase to 80% in FY82-83. Based on these assumptions, the total resource

requirements for strengthening M & E in AGR projects would be for

FY80:	23.2 manyears
FY81:	23.6 manyears
FY82:	24.3 manyears
FY83:	26.3 manyears

To compute the incremental manpower needs we further assumed that one third of needs are currently met. This is an extremely conservative assumption considering the list of unfilled requests for assistance to RORSU, and the fact that in West Africa Region only about 23% of the needs are currently met (West African submission to the Task Force). Although there is no quantitative information on the unmet needs in other regions, it is quite clear that M & E has been taken more seriously in some regions (e.g. West Africa) than in others.

In consequence, if one third of the needs are met, the incremental manpower requirements for strengthening M & E in AGR projects would be 15 manyears in FY80, one manyear in FY81 and one manyear in FY82 and two manyears in FY83.

The attached table shows only a Bank-wide projection and does not take into account regional differences. Furthermore, the number of manweeks that are required for preparation, appraisal and supervision of M & E systems are based on percentages of average manpower time spent for these activities for all AGR projects. Since the latter vary widely it follows that the amount of time required for M & E on each individual project will also vary substantially. Some projects will not require M & E (we assumed 20%-25%), others will require monitoring with minimal evaluation, still others -- mostly experimental and poverty-oriented rural development projects -- will require very intensive M & E.

To account for these differences we recommend that the 15 additional manyears required for FY80 be allocated as follows: two new positions, for project specific M & E in each region, and three additional positions for that purpose in CPS/AGR. Together with the only existing position for the project specific M & E in RORSU there would then be 4 manyears available in CPS to meet unfulfilled requests (my memorandum of January 25) for field assistance, as well as for continuation of other M & E activities. This would also provide a pool of resources upon which regions could call, especially for more intensive M & E efforts.

As a part of its overall responsibility RORSU has devoted 77 manweeks of professional time to M & E in FY78 (see Table 2). In order to achieve this

level of work on M & E in FY79 RORSU had, however, to reduce the manpower available for other work, 1/ particularly sociology and cross fertilization. During the current FY79 we will be able to devote only about 40 manweeks (1 manyear) to the subject of project specific M & E systems. This is a totally inadequate quantum of resources for assisting operating divisions on M & E systems. I therefore strongly recommend that RORSU staff for project specific M & E be increased from 1 to 4 positions (or 168 manweeks per year), plus one permanent research assistant.

Table 2 shows a proposed allocation of 4 manyears of RORSU time in FY80 for project specific monitoring and evaluation. The proportion of direct field assistance for M & E to the regions would decrease from 50% to 45%. Three additional positions in AGR/CPS would permit to increase the field assistance from 39 to 76 manweeks or by 95%. In addition to this, these three centrally located extra positions would permit a critical expansion of the training for and cross fertilization of ideas on M & E. With 4 manyears RORSU could annually allocate almost one third of its staff resources or 50 manweeks for training and workshops. Other functions such as reporting on progress made on M & E, in house operational support and review would proportionally be decreased, but remain in actual manweeks at approximately the same level as in FY78.

In summary, RORSU's projection of the manpower requirements for strengthening M & E of AGR projects expected to be approved in FY80 to FY83 calls for 15 additional manpower positions in FY80 and some marginal increments thereafter. These additional positions for project specific M & E should be allocated at the rate of two additional staff per region and three professionals and one research assistant in AGR/CPS. This would permit us to allocate four manyears to project specific M & E, which would be used for direct assistance to the regions (to compensate for regional differences), for training of project staff and for cross fertilization of M & E experiences.

Attachment

TJD/cc

cc: Messrs. M. Yudelman, AGR; L. Christoffersen, AGR; D. Turnham, AGR

1/ RORSU currently has four professional staff, reduced from five on January 1, 1979. The primary work of RORSU is monitoring the Bank's overall lending program of agriculture and rural development and to report to management on the degree to which the poverty oriented rural development policies are being achieved. It also has the responsibility of policy and procedural guidance on methodologies to achieve a deepening of Bank's program to reach larger numbers of the poverty target group. This includes an important program in sociological assistance, institutional guidance, and staff cross fertilization.

TABLE: PROJECTION OF THE MANPOWER REQUIREMENTS FOR
MONITORING AND EVALUATION ON AGR PROJECTS FROM FY80-83

Fiscal Year	AGR Projects	Projects with M & E	Number of M & E Components to be prepared or (further elaborated)	Number of M & E Components to be Supervised (cumulative) ^{3/}	Manpower Requirements for M & E			Total Requirements in Man weeks	Total Resource Requirements in Man Years	Total Incremental Manpower for M & E ^{2/}
					Preparation X = 1.5 man weeks per project ^{5/}	Preappraisal/ Appraisal X = 3 man weeks per project ^{5/}	Supervision X = 1.5 man weeks per project ^{6/}			
74	51	20		20						
75	70	38		58						
76	65	35		93						
77	64	56		149						
78	88	67	37 ^{2/}	216						
79	82	62 ^{1/}	37 ^{2/}	278						
80	97	73 ^{1/}	73	331	109.5	219.0	644.5 ^{4/}	973.0	23.2	+15
81	106	80 ^{1/}	80	373	120.0	240.0	633.5 ^{4/}	993.5	23.6	+ 1
82	107	86 ^{1/}	86	424	129.0	258.0	636.0	1,023.0	24.3	+ 1
83	115	92 ^{1/}	92	460	138.0	276.0	690.0	1,104.0	26.3	+ 2

^{1/} Assuming that in the period FY79 to FY81, about 75% of the AGR projects will include monitoring and evaluation, and that with the growing complexity of AGR projects, especially of the rural development projects the proportion with monitoring and evaluation will increase to 80% for FY82 and FY83.

^{2/} About 55% of the projects with M & E approved in FY78 were not costed in the Appraisal Report and/or staffing requirements were not specified. They will require additional preparation as part of the supervision effort. The same can be assumed for FY79 projects.

^{3/} Assuming that supervision of M & E would be terminated at the time of full disbursement and that the average implementation period is about 5 years.

^{4/} Includes the extra supervision effort on about 74 projects approved in FY78-79 which included M & E but neglected to adequately prepare or appraise that component. Two man weeks per project have been assumed for FY80 (or 148 man weeks in addition to 496.5 required for regular supervision in FY80) and one man week extra per project for FY81 (or 74 man weeks in addition to the 559.5 required for regular supervision in FY81).

^{5/} The number of man weeks required for preparation, preappraisal and appraisal of M & E components is assumed to be 5% of the average number of man weeks spent for those activities on each project; thus, 5% of 90 man weeks, i.e. 4.5 man weeks to be divided between preparation and appraisal.

^{6/} The number of man weeks required for supervision of M & E is assumed to be 10% of the average of 14 to 15 man weeks for supervision of AGR projects. This corresponds with the experience gained by RCRSU and the West African recommendation.

^{7/} Assuming that one-third of the requirements are already covered. In the West African submission only about 23% of the requirements are currently met.

RORSU MANPOWERActual Use and Future NeedsOn Project Specific Monitoring and EvaluationFY 78 Actual

	<u>Manweeks</u>	<u>%</u>
Field Assisting	39	50
Guidelines & Reporting	12	16
In house OSA for M & E	10	13
CPS Review	5	6
Training & Workshops	<u>12</u>	<u>15</u>
Total	<u>78</u>	<u>100</u>

Equal to 1.8 man/yearMINIMUM NEEDS FOR FY80

	<u>Manweeks</u>	<u>%</u>
Field Assisting	76	45
Guidelines and Internal Reporting	25	15
In house OSA for M & E	12	7
CPS Reviews	5	3
Training and Workshops	<u>50</u>	<u>30</u>
	<u>138</u>	<u>100</u>

Equal to 4.0 man/year

OFFICE MEMORANDUM

S - Aquilino

TO: Mr. Montague Yudelman, AGR
 (through Leif Christoffersen, AGR)

DATE: January 25, 1979

FROM: Ted J. Davis, AGROR

SUBJECT: Additional Resource Requirements for FY79 and Proposed FY80
 Budget for AGR. Information Retrieval System

A. Use and Costs in the First Half of FY79

Attached is a table showing the actual use and expenditures for the development and operation of the AGR computerized information retrieval system in the period July to December 1978.

During the last six months, we have used the terminal 536 times, consumed 337 hours of terminal connect time, and 87,656 TRUs (Tymshare Recording Units), which, with the cost of storage of data, amounted to approximately \$24,225. (In the period February to June '78 system development costs totalled \$15,140).

The average use in the period July to December '78 was 107 sessions, sixty-seven hours of terminal connect time, and 17,531 TRUs per month. In consequence, the average cost per month was \$4,037 (including development and operation of the system).

You will note from the attached table that we have made an increasing use of the system in non-prime time i.e. after 6 p.m. and over the week-ends. Non-prime time use of the system in August was marginal (0.9% of the TRUs); this has gradually increased to roughly one third of all the requests now being fulfilled in non-prime time. Since non-prime time use of the system is charged at half the rates of prime time use, this has substantially contributed to keeping the costs down. (Especially since no over-time was paid to our research assistant, and no rental charges were paid for the use of personal terminals).

It should also be noted that in the period July to September '78, we loaded data on five fiscal years into the system and that the peak use in October is due to the fact that we documented the entire content of system which required a lot of terminal connect time.

A rough functional breakdown of the actual expenditures on the system is as follows:

* <u>Development Cost</u> (July-December '78)	\$10,000
- loading of FY74-77 data	\$8,000
- restructuring of the data bank	2,000
* <u>Operational Costs</u> (July-December '78)	14,225
- production of regular reports (e.g. projects under supervision)	1,000
- special studies (e.g. on employment, multisectoral projects, etc.)	4,225
- ad hoc requests	9,000

\$24,225

B. Additional Resource Requirements for FY79

Based on this breakdown we expect for the remainder of FY79 following additional needs for budgetary provisions:

* Development Cost (January-June '79)

- loading of FY79 data and of new poverty
income data \$ 2,500

* Operational Costs (January-June '79)

- regular reports: Monitoring of lending
operations and report on projects
under supervision 3,000

- special studies 4,500

- ad hoc requests 10,000

\$20,000

These estimates are based on the assumptions that (i) over the next six months development costs will be limited to the updating of existing fields (and thus that no new files will be created for, say, subsectoral data banks); (ii) the demand for special studies and ad hoc requests for information will stagnate or only marginally increase.

C. Requirements for FY78

Since in FY79 about one-third of the total costs will be spent on development, we expect that the budgetary provisions required for operation of the AGR information retrieval system in FY80 would be \$30,000. Further developments, such as subsectoral data banks, expansion of the supervision data files or creation of entire new data files, would require additional development funds, probably in the order of \$5,000.

D. Recommendations for Future Cost Savings

Considering the increasing demands for information from RORSU's computerized system, a number of options should be considered for reducing future operating costs.

At present we are renting two teletypewriters (at a monthly charge of \$185) to access the system. Each of these teletypewriters is running at three hundred band rate or 30 characters per second. Many ad hoc requests and, especially the special studies, often require the typing of several pages of output. This absorbs a lot of terminal connect time for which the total charges in July-December '78 exceeded \$2,700. If we would replace one of our teletypewriters by a video terminal and a line printer we would not only be able to increase the speed of sending programs to the computer, but also get faster and better printed outputs (most line printers can produce at 165-180 lines per minute). The monthly rental charges for a video and a line printer

would be about two to three times higher but we could save this in terms of our terminal connect time. I will send a request to CAD to replace one of our teletypewriters by a video terminal and a high speed line printer, to affect these cost savings.

Another way of saving costs is to further increase the proportion of jobs run in non-prime time. As indicated above, we are already fulfilling one third of the information requests after 6 p.m. or over the week-ends. A further increase of the non-prime time use of the system which would substantially reduce the charges for TRUs, could be realized but might require some special leave privileges and/or compensations for costs incurred by the staff involved.

Over a longer period of time, it would be more advantageous to buy our own equipment than to rent it. For example, a teletypewriter or a video terminal that would serve our needs costs about \$2,000; a line printer costs about \$4,000. Thus a total capital investment of roughly \$6,000, amortized over five years, assuming zero salvage value at the end of five years, would amount to \$100 per month, to access the AGR information retrieval system.

Attachment

GDeboeck/cc

Table
ACTUAL USE AND COSTS OF THE
AGR COMPUTERIZED INFORMATION SYSTEM JULY-DECEMBER 1978

	Number of Sessions at the Terminal <u>1/</u>	Terminal Connect Time in hours <u>2/</u>	Tymshare Recording Units (TRU's) <u>2/</u>	Total Cost	Cumulative Total
July 78	n.a.	n.a.	n.a.		
August 78	70	53.7	11,537 (0.9%)	\$ 2,119	\$ 2,119
September 78	133	51.6 (7%)	8,954 (10%)	\$ 3,352	\$ 5,471
October 78	166	132.6 (30%)	37,650 (36%)	\$ 4,127	\$ 9,598
November 78	124	77.7 (30%)	25,096 (34%)	\$ 8,297	\$17,895
December 78	43	21.4 (28%)	4,419 (58%)	\$ 5,295	\$23,190
				\$ 1,035 <u>3/</u>	\$24,225 <u>3/</u>
Total	536	337.0	87,656	\$24,225	
Average/Month	107	67.4	17,531		\$ 4,037

- 1/ A second user's number was requested in August and became operational in September 1978. This explains the nearly doubling of the number of sessions from September 1978 on.
- 2/ The proportion of non-prime time for terminal connect time and TRU's is shown between brackets. The rates for non-prime time use, i.e., after 6:00 p.m. and on week-ends, are half those of prime time use.
- 3/ Since the actual expenditures for December 1978 were not yet provided to us at the time of this report, these represent cost estimates based on our own records. Actual costs for December 1978 may be slightly different, which would also affect the cumulative total for the period July to December 1978.

Mr. J. Goering, AGR

January 25, 1979

A. J. Pritchard, ASPAC *AJP*

Bank Support of Agricultural Research - Policy Issues and
Recommendations - by W. J. MacNally

1. I found the above paper interesting and well written. Besides the notes I have scribbled on the manuscript, I have the following points to raise.

- (a) Reading the paper, it is not clear to me why the Bank should become involved in agricultural research projects. There are reasons given as to why the Bank should not become involved in certain types of research--e.g. fundamental research--but there is nothing on the positive side. It may be that the Bank is the only lending institution large enough to provide sufficient funds to support national research projects. I would feel disappointed if this were the case, as I think that the Bank has sufficient expertise to offer more than just money. We should be able to help establish the infrastructure needed, the organization and the research philosophy, and if our projects are not doing this we should reconsider our involvement in research. How many other lending institutions support national research projects and with what aims?
- (b) As a member of one of the projects divisions involved with agricultural research, I am concerned about the role of ISNAR and the effect its activities will have on the design and identification of projects, and ultimately the lending program. There are several instances in the paper where it would appear that the roles of the Bank and the roles of ISNAR are very similar. My total experience is in South Asia and perhaps in other regions the roles of ISNAR and the Bank may be more complementary than I suspect they would be in my region.
- (c) I would like to see the long term role of the international research institutes defined more clearly. It seems strange to me that IRRI, CIMMYT, etc. should be doing the same type of work as when they were first established. As national research systems get more efficient, they develop their own research capacities and their dependence on the institutes for such things as segregating populations is reduced. In this situation, what sort of work should be conducted at the institutes? It seems to me that they should begin to look more deeply into the problems and more towards fundamental research so that they are in the position to provide the base information for the technological step forward which will be required when the maximum use has been made of present technology and information.
- (d) One small point. The word "region" is used with different meanings in different parts of the paper.

AJPritchard:lmh
AJP

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JAN 25 RECD

Mr. Richard Dosik (CPSVP) & Task Force Members

January 25, 1979

Michael Cernea (AGR)

Revised Figures on Monitoring and Evaluation Components

1. Attached are the revised tables on Monitoring and Evaluation in Agriculture and Rural Development projects for the FY74-78 period.
2. Essentially, the revisions consist of more accurate figures for the years 1974-1977. As a result, the generally increasing trend appears clearer. In FY78, about 76% of the total number of AGR and Rural Development project reports make some provisions for a Monitoring and Evaluation component, compared with 67% in FY77 and only 54% in FY76.
3. Yet, the proportion of projects with separate cost estimates for monitoring and evaluation has not increased as expected: it remains constant at about 45%. This should probably warrant a Task Force recommendation for a considerably more specific assessment of what is actually required (in financial, staffing, and logistical terms) for setting up and operating the project monitoring and evaluation system. Such an assessment should be made during project preparation and, particularly, at appraisal stage. Otherwise the setting up of project M & E units is confronted from the very first day with the lack of specified resources and therefore considerably delayed.

Attachment

MC/dc

cc: Messrs. Yudelman, Pickering, Christoffersen, Davis, Turnham

TABLE 1: MONITORING AND EVALUATION IN BANK FINANCED

AGRICULTURE AND RURAL DEVELOPMENT PROJECTS

FY74-FY78

	FY74	FY75	FY76	FY77	FY78	Total
1. Number of Agriculture and Rural Development Projects	51	70	65	84	88	358 *
2. Number of Agriculture and Rural Development Projects with a Monitoring and Evaluation Component	20	38	35	56	67	216
3. (2) as a percentage of (1)	39%	54%	54%	67%	76%	60%

* Does not include the supplementary loans and technical assistance projects which, by their nature, can not have M & E systems.

TABLE 2: TOTAL AND AVERAGE COSTS OF
MONITORING AND EVALUATION COMPONENTS IN
AGRICULTURE AND RURAL DEVELOPMENT PROJECTS
 FY74-78 (US\$ Million)

	FY74	FY75	FY76	FY77	FY78
1. Total Base Cost of Projects with Monitoring and Evaluation Components separately costed	122.95	901.65	606.62	1,208.2	2,589.6
2. Total Cost of Monitoring and Evaluation in AGP projects (who separately costed Monitoring and Evaluation) (US\$ Million)	0.85	13.12 ^{1/}	10.25	16.35 ^{2/}	14.94
3. (2) as percentage of (1)	0.5%	1.5%	1.7%	1.4%	0.6%
4. Average Monitoring and Evaluation Cost per Project	0.17	0.6	0.6	0.65	0.498

^{1/} Includes US\$2.7 million for Monitoring and Evaluation of 3 projects in Nigeria.

^{2/} Includes US\$6 million for data gathering and analysis activities in Orissa Agriculture Development Project in India.

TABLE 3: REGIONAL DISTRIBUTION
OF M/E COMPONENTS IN AGRICULTURE AND RURAL

DEVELOPMENT PROJECTS APPROVED IN FY78

	Number of AGR and RD Projects (1)	Number of Projects with M/E (2)	(2) as % of (1) (3)	M/E Components Separately Costed	Total Cost of M/E Components (US\$ million)	Cost of M/E as % Base Costs	Regional Shares No. M/E Components	Cost of M/E
East Africa	11	8	73%	5	1.95	2%	12%	3.8%
West Africa	13	9	69%	4	.93	1.7%	14%	2.2%
EMENA	14	10	71%	5	1.65	.2%	15%	2.5%
East Asia	15	13	87%	5	4.0	.6%	19%	25%
South Asia	23	17	74%	7	3.5	.8%	25%	16%
Latin America	12	10	83%	4	2.9	.6%	15%	20%
<u>Total</u>	88	67	76%	30	14.93	.6%	100%	100%

TABLE 4: COST AND STAFFING OF MONITORING AND EVALUATION
COMPONENTS IN AGRICULTURE AND RURAL DEVELOPMENT PROJECTS

FY74-78

	FY74	FY75	FY76	FY77	FY78	Total
1. Number of Agriculture and Rural Development Projects with Monitoring and Evaluation Components	20	38	35	56	67	216
2. Number of Projects with Separate Cost Estimates for Monitoring and Evaluation	5	22	17	25	30	99
3. (2) as per percentage of (1)	25%	58%	49%	45%	45%	46%

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



S. Agriculture
In Annex
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

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Ref. UN 12/1
PR 12/1 Bangladesh

24 January 1979

Dear Mr. Yudelman,

I wish to thank you for your kind letter of 12 January 1979 regarding Mr. David A. P. Butcher's cooperation with the World Bank last November in reviewing compulsory resettlement schemes and preparing a draft paper with guidelines and procedures for handling such components in the future.

We were pleased to be able to make available to you Mr. Butcher's experience from his long association with resettlement projects.

On the other hand, Mr. Butcher has also gained very interesting experience from his collaboration with your colleagues and he has communicated to us his resulting observations on the participation of anthropologists and sociologists in project work.

I am glad that the temporary release of Mr. Butcher from his position in Dacca has been of mutual benefit to the Bank and FAO.

With best personal regards,

Yours sincerely,

Juan Felipe Yriart
Assistant Director-General
Development Department

Mr. Montague Yudelman
Director
Agriculture and Rural Development Dept.
The World Bank
1818 H. Street, N.W.
WASHINGTON, D.C. 20433
U.S.A.

January 24, 1979

Dr. David Dapice
Department of Economics
Tufts University
Medford, Mass. 02155

Dear David:

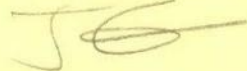
The paper on tropical root crops is making its tortuous way through Bank clearance procedures and seems likely to emerge as a Staff Working Paper in the next few weeks. It was reviewed last week by the Operational V-Ps and generally well-received. A decision has been made to send the full paper to Mr. McNamara and the Bank Board for their information.

A few days ago Alan Berg received the attached letter from Dick Heyward at UNICEF which is probably indicative of the concern which nutritionists tend to have about some of the nutritional dimensions of the paper. I would appreciate your views as to Heyward's points in his paragraphs 4 and 5 and also want to know if you feel any of the language in the present version of the paper (enclosed) should be qualified or altered. In any case, we should provide in the paper the complete reference to the Brazilian survey and I hope you could send that to me.

Time, as usual, is short on this. Perhaps you could call me with specific suggestions on these matters.

Thanks again for your help on the background work. I believe all concerned can take considerable satisfaction in the final product.

Sincerely,



T. James Goering

cc: Mr. G. Donaldson

TJC:ga

S. Aguilera

Mr. Richard Dosik (CPSVP)

January 24, 1979

Ted J. Davis (AGR)

RORSU Monitoring and Evaluation Activities

1. RORSU's support activities for project specific monitoring and evaluation systems have developed along the following lines:

(a) Field Missions Undertaken by RORSU Staff at the Request of Operating Divisions

Due to staff time constraints, RORSU assisted operating divisions on a selected basis, going out on preparation and appraisal missions especially for projects with more innovative approaches for complex projects and for projects where the design of a monitoring and evaluation system could serve more or less as a standard model for other projects as well. For instance, assistance was provided for the design of M & E systems in several rural development and nutrition projects in Brazil. In South Asia, RORSU assistance for designing a M & E system for agricultural extension projects has had a multiplier effect, the proposed system being introduced in seven projects in India and in similar projects in Pakistan, Bangladesh, Sri Lanka, Philippines and other countries.

However, attending field missions is a very costly manpower support, given both the time needed in the field and the time for report writing. Annex 1 lists all projects for which RORSU staff participated in field missions.

(b) Written Reviews on Monitoring and Evaluation Components or Proposals

All yellow cover reports being reviewed by RORSU are examined, inter alia, in terms of their monitoring and evaluation systems, and written suggestions are given to the regions. Quite often, RORSU receives full scale proposals for monitoring and evaluation systems submitted by the borrowers to the regional divisions for Bank approval. Written comments are given on these too. Annex 2 lists all projects in Fiscal Years 1977-1978 for which written comments were given.

(c) Desk Assistance for Setting Up M & E Systems

There is a continuous dialogue between regional staff and RORSU on an ad-hoc basis, when regional staff requests advice about how to set up project specific M & E systems. These requests are handled through informal discussions, meetings, etc. without written documents. They are continuous and very numerous, but we do not log them.

(d) Training and Crossfertilization

Another form of RORSU support for M & E are the training Workshops on monitoring and evaluation for Bank staff. Such two-day workshops have been organized three times during the past calendar year. However, the in-house training needs are far greater. RORSU has the competence and experience to perform this training function on a larger and more intensive scale, but the constraints on RORSU staff time prevents us from organizing these workshops more often.

RORSU staff has also initiated a series of Regional (International) Workshops on monitoring and evaluation. These aim primarily at intensive interchanges of experiences on the issues, and approaches used for M & E between project managers and evaluation officers of Bank supported rural development projects. The first workshop in this series will take place in Nairobi in April 1979, to which some 40 project managers and M & E officers from 15 projects in East Africa have been invited. Similar workshops are contemplated for East Asia, West Africa and LAC.

2. The amount of support requested by regional agricultural divisions from RORSU in the last two fiscal years has far exceeded RORSU's staff capabilities, although considerable overtime office work was performed by RORSU staff. The amount of unfulfilled requests is an indicator of perceived needs in the region as well as of the need to increase RORSU's staff capabilities. The list of projects for which requests for field missions could not be fulfilled is given in Annex 3.
3. RORSU Staff Needs for Monitoring and Evaluation: We are preparing a separate document which will be sent to you on Friday, January 26, on the staff requirements in respect to M & E systems in Agric. and Rural Development operations. This will focus on the needed support for strengthening monitoring and ongoing evaluation systems in agricultural and rural development projects. This support would take the form of research into optimum types of M & E systems, direct assistance, and guidance to, the M & E efforts in the regional departments, development of guidelines and manuals on M & E, and for improving the quality and intensity of the in-house training function.

Attachments

MC/TD/GD/dc

FIELD MISSION ASSISTANCE FOR M & E PROVIDED BY RORSU
in FY 1977-78

India - Madhya Pradesh Agric. Extension	Oct. 1977
India - West Bengal Agric. Extension	Oct. 1977
India - Orissa Agricultural Development	Oct. 1977
Brazil - Rio Grande de Norte	Oct. 1976
Brazil Paraiba Rural Development Project	Oct. 1977
Brazil Nutrition Project	Oct. 1976
Brazil Nutrition Project	May 1977
Brazil Nutrition Project	Jan. 1978
Kenya Integrated Agric. Development Project	July 1976
Kenya IADP	Jan. 1977
Kenya IADP	Mar. Apr. 1978
Mexico PIDER I	Dec. 1977
Mexico PIDER II	Dec. 1977
Mexico PIDER I	May 1978
Mexico PIDER II	May 1978
Tanzania Mwanza Shinyanga Rural Development Project	July-Aug. 1977
Mauritius Rural Development Project	Sept. 1976
Brazil Minas Gerais Rural Development	Oct. 1977
Philippines Rural Development II	Aug. 1977
Nigeria Funtua Rural Development	May 1978
Nigeria Gusau Rural Development Project	May 1978
Nigeria Gombe Rural Development Project	May 1978
Yemen Rural Development Project	FY77
Indonesia Transmigration	Aug. 1976

LIST OF PROJECTS IN WHICH COMMENTS WERE MADE ON M & E
PROVISIONS DURING REVIEW OF STAFF APPRAISAL REPORTS

FY77 - FY78

Fiscal Year 1977

1. Costa Rica: Agricultural Credit III
2. Bangladesh: Shallow Tubewells I
3. Thailand: National Agricultural Extension
4. Bangladesh: Jute
5. Afghanistan: Third Agricultural Credit
6. Philippines: First Livestock Project
7. Philippines: National Irrigation Systems Improvement I
8. Sudan: Savannah Development
9. Upper Volta: West Volta Development Project
10. Morocco: Doukkala II Irrigation
11. Greece Evros Rural Development Project
12. India: Bihar Agricultural Extension and Research Project
13. India Assam Agricultural Extension and Research Project

Fiscal Year 1978

1. Malawi - National Rural Development Program
2. Nepal - Narayani Zone Irrigation Development Stage II
3. Ivory Coast - Saph Rubber
4. Brazil - Bahia Rural Development
5. Egypt - Agriculture Development
6. Indonesia - Nucleus Estates and Smallholders II

7. Honduras - Guayape Regional Development
8. Yemen Arab Republic - Tihama Development Project II
9. Nepal: Sunsari-Marong Irrigation & Drainage Development
10. Sri Lanka: Tree Crop Diversification Project I
11. Malaysia: Smallholder Coconut Development Project
12. Thailand: Northeast Irrigation Project II
13. Philippines: Rural Infrastructure
14. Mexico: Tropical Agriculture Development
15. Lesotho: Basic Agricultural Services Program
16. India: Karnataka Irrigation
17. Brazil: Paraiba Rural Development
18. Philippines: National Irrigation Systems Improvement II
19. Cameroon: Western Highlands Rural Development
20. Nicaragua: Second Agricultural Credit
21. Philippines: Smallholder Treefarming & Forestry
22. Niger: Irrigation Project
23. Sri Lanka - Kurunegalo Rural Development
24. Turkey - Livestock IV
25. Afghanistan - Khanabad II Irrigation
26. India Composite National Extension Project
27. Pakistan Punjab Extension and Agricultural Development Project
28. Philippines: National Extension Project
29. Yugoslavia: First and Second Agricultural Credit Project

UNFULFILLED REQUESTS FOR RORSU FIELD ASSISTANCE

Field

Cyprus - Rural Development (Appraisal)
Equador - Rural Development (Preparation)
India - ARDC 1 (Supervision)
ARDC 2 (Supervision)
Nigeria Rice Development I (Supervision)
Sierre Leone Integrated Agricultural Development III (Appraisal)
Upper Volta Livestock I (Supervision)
Morrocco - Meknes Rural Development Project (Supervision)
India - Cotton Development (Supervision)
Senegal - Eastern Senegal Livestock (Supervision)
Mali Livestock Development Project (Supervision)
Colombia - Rural Development (Supervision)
Costa Rica - Agricultural Credit & Rural Development (Supervision)
Somali - Northwestern Agriculture (Appraisal)
Togo Maritime Rural Development (Appraisal)
Ghana - North Ghana Rural Development (Supervision)
Egypt Drainage II (Supervision)
Turkey - Corun Cankiri (Supervision)
Bolivia - Rural Development I (Supervision)
Thailand - Rural Development N.E. (Design)
Bangladesh Rural Development I (Appraisal)
Kenya - Bura Irrigation (Supervision)
Rwanda Rural Development (Supervision)

Zaire Cotton Rehabilitation (Appraisal)

Greece - Evros (Appraisal)

Yugoslavia - Agric. Credit II (Supervision)

Haiti Rural Development I (Preparation/Appraisal)

Jamaica Rural Development I (Appraisal)

Paraguay Rural Development II (Appraisal)

Malaysia UNDP Agric. Training Programme (Preparation)

PPNG Agric. Development IV (Appraisal)

Malawi - Shire Consolidation (Appraisal)

Togo Rural Development Cotton Area (Appraisal)

YAR - Tihama II (Appraisal)

Bangladesh - Jute Development (Appraisal)

Pakistan Hill Farming Technical Development (Supervision)

Mr. C. Walton, EAP

January 24, 1979

Ted J. Davis, AGROR

Information Presented by Mr. Yudelman to all Agriculture Staff,
December 21, 1978

As we discussed on the telephone, Mr. Yudelman did not prepare a written speech. He did, however, discuss the Bank's past lending program for agriculture and rural development as well as the expectations for the next five years.

I attach copies of information prepared by RORSU as an input to Mr. Yudelman's remarks. The attachments relating to future lending came from P & B's Table 4a, a summary of which is also attached.

Attachments

TJDavis/cc

PROJECTED WORLD BANK LENDING
FOR AGRICULTURE AND RURAL DEVELOPMENT
FOR THE PERIOD FY79-83 (AMOUNTS IN US\$ BILLIONS)

FISCAL YEAR	NUMBER OF PROJECTS	BANK	IDA	TOTAL LENDING US\$M
79	82	1,522.6	1,097.6	2,620.2
80	97	1,920.0	1,738.7	3,658.7
81	106	2,491.0	1,626.0	4,117.0
82	107	3,061.0	1,670.0	4,731.0
83	115	3,054.0	1,552.0	4,606.0
TOTAL	507	12,048.6	7,684.3	19,732.9

TABLE IVA - LENDING PROGRAM SUMMARY OF ALL REGIONS BY ORGANIZATION AND FISCAL YEARS

REGION	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84		
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	
EASTERN AFRICA																							
IBRD	9	295.0	11	178.0	14	304.0	13	349.0	14	359.0	16	415.0	12	188.9	31	536.1	69	1244.4	61	1485.0	68	1605.0	
IDA	28	419.7	27	516.5	26	438.0	28	566.0	29	601.0	29	618.0	28	152.7	62	534.1	101	1393.6	138	2541.2	137	2698.5	
TOTAL	37	714.7	38	694.5	40	742.0	41	915.0	43	960.0	45	1033.0	40	351.6	93	1070.2	170	2638.0	199	4026.2	205	4303.5	
WESTERN AFRICA																							
IBRD	12	357.9	15	482.0	20	653.0	20	620.0	26	810.0	25	900.0	14	214.4	39	589.2	74	1318.7	93	2922.9	106	3465.0	
IDA	23	240.5	23	342.5	22	278.0	25	290.0	24	300.0	25	302.0	8	83.4	60	298.3	78	738.9	117	1451.0	117	1496.5	
TOTAL	35	598.4	38	824.5	42	931.0	45	910.0	50	1110.0	50	1202.0	22	297.8	99	887.5	152	2057.6	210	4373.9	223	4961.5	
EUROPE, MID EAST & N AFR																							
IBRD	39	1502.0	44	1926.0	47	2286.0	45	2255.0	45	2348.0	46	2730.0	28	498.8	81	2007.2	161	6774.4	220	10717.0	226	11466.0	
IDA	12	245.9	9	285.1	10	222.0	11	237.0	12	221.0	13	237.0	10	105.5	30	381.5	49	697.0	54	1212.0	55	1202.1	
TOTAL	51	2148.9	53	2211.1	57	2508.0	56	2492.0	57	2569.0	59	2967.0	38	604.3	111	2388.7	210	7471.4	274	11929.0	281	12668.1	
LAT. AMER. & CARIBBEAN																							
IBRD	48	2340.1	49	2670.0	52	2912.0	55	3103.0	58	3742.0	62	3939.0	73	1503.3	121	3415.4	187	7384.0	26	14776.1	274	16246.0	
IDA	2	33.0	3	46.0	4	40.0	2	54.0	2	45.0	1	30.0	6	48.7	16	116.5	18	205.9	13	218.0	12	215.0	
TOTAL	50	2322.1	52	2716.0	56	2952.0	57	3157.0	60	3787.0	63	3969.0	79	1552.0	137	3531.9	205	7589.9	275	14994.1	286	16461.0	
EAST ASIA & PACIFIC																							
IBRD	31	1738.6	33	1836.0	35	2143.0	40	2394.0	39	2650.0	41	2925.0	33	543.1	59	1271.6	144	6072.8	178	10751.6	189	11948.0	
IDA	9	307.0	10	376.0	9	300.0	6	230.0	9	230.0	7	240.0	1	11.0	43	636.5	15	267.2	43	1443.0	41	1376.0	
TOTAL	40	2045.6	43	2212.0	44	2443.0	46	2624.0	48	2880.0	48	3165.0	34	554.1	102	1908.1	159	6340.0	221	12204.6	229	13324.0	
SOUTH ASIA																							
IBRD	1	250.0	2	350.0	4	470.0	5	510.0	5	520.0	5	550.0	13	355.0	16	432.6	22	1365.0	17	2100.0	21	2400.0	
IDA	35	1645.2	36	1958.0	35	1860.0	39	1930.0	42	2000.0	45	2140.0	28	925.3	62	1964.7	115	4644.8	187	9393.2	196	9808.0	
TOTAL	36	1895.2	38	2308.0	39	2330.0	44	2440.0	47	2520.0	50	2690.0	41	1280.3	78	2397.3	137	6009.8	204	11493.2	217	12208.0	
GRAND TOTALS																							
IBRD	140	6892.6	154	7442.0	172	8768.0	178	9231.0	187	10429.0	195	11459.0	173	3303.5	347	8252.1	657	24159.3	831	42762.6	883	47130.0	
IDA	109	2892.3	108	3524.1	106	3138.0	111	3307.0	118	3397.0	120	3567.0	81	1336.6	273	3931.6	376	7947.4	552	16258.4	558	16796.1	
TOTAL	249	9784.9	262	10966.1	278	11906.0	289	12538.0	305	13826.0	315	15026.0	254	4640.1	620	12183.7	1033	32106.7	1383	59021.0	1441	63926.1	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION IS EASTERN AFRICA FY 1979		AFRICA FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
BOTSWANA			2	13.0	2	17.0	1	10.0	2	17.0	2	15.0			1	32.0	7	60.3	7	57.0	9	72.0
IBRD													1	3.6	4	9.2	1	3.0				
IDA																						
TOTAL			2	13.0	2	17.0	1	10.0	2	17.0	2	15.0	1	3.6	5	41.2	8	63.3	7	57.0	9	72.0
BURUNDI																						
IBRD																						
IDA	1	2.5	3	33.0	2	15.0	2	18.0	2	17.0	2	20.0	1	1.1	2	2.2	7	45.1	10	85.5	11	103.0
TOTAL	1	2.5	3	33.0	2	15.0	2	18.0	2	17.0	2	20.0	1	1.1	2	2.2	7	45.1	10	85.5	11	103.0
COMOROS																						
IBRD																						
IDA	1	5.0			1	5.0			1	5.0									1	15.0	2	10.0
TOTAL	1	5.0			1	5.0			1	5.0									3	15.0	2	10.0
EAST AFRICA COMMUNITY													2	51.0	6	154.8	1	15.0				
IBRD																						
IDA													2	51.0	6	154.8	1	15.0				
TOTAL													2	51.0	6	154.8	1	15.0				
ETHIOPIA													3	41.8	3	38.4						
IBRD													1	14.9	11	107.8	11	231.9	13	478.0	16	568.0
IDA	1	40.0	4	126.0	2	100.0	2	85.0	4	127.0	4	130.0	4	56.7	14	146.2	11	231.9	13	478.0	16	568.0
TOTAL	1	40.0	4	126.0	2	100.0	2	85.0	4	127.0	4	130.0	4	56.7	14	146.2	11	231.9	13	478.0	16	568.0
KENYA																						
IBRD	5	211.0	2	56.0	4	155.0	4	165.0	4	180.0	5	200.0			5	86.4	21	407.9	19	767.0	19	756.0
IDA	1	13.0	3	69.0	1	20.0	1	80.0	1	40.0	1	50.0	8	39.0	5	50.3	4	157.0	7	222.0	7	259.0
TOTAL	6	224.0	5	125.0	5	175.0	5	245.0	5	220.0	6	250.0	8	39.0	10	136.7	25	564.9	26	989.0	26	1015.0
LESOTHO																						
IBRD																						
IDA	1	9.0	1	6.0	1	4.0	1	8.0	2	15.0	1	10.0	1	4.1	1	5.6	5	25.5	6	42.0	6	43.0
TOTAL	1	9.0	1	6.0	1	4.0	1	8.0	2	15.0	1	10.0	1	4.1	1	5.6	5	25.5	6	42.0	6	43.0
MADAGASCAR																						
IBRD																						
IDA	4	56.0	2	9.0	2	33.0	3	36.0	2	41.0	2	30.0	1	10.0	3	49.4	5	98.8	13	175.0	11	149.0
TOTAL	4	56.0	2	9.0	2	33.0	4	51.0	3	56.0	3	45.0	2	14.8	6	70.7	6	105.6	15	205.0	14	194.0
MALAWI																						
IBRD	1	3.0			2	39.0			1	40.0	1	20.0							2	26.2	4	99.0
IDA	2	40.0	1	19.0	1	36.0	2	38.0	1	15.0	2	38.0	5	28.0	4	29.7	8	75.8	7	148.0	7	146.0
TOTAL	3	43.0	1	19.0	3	75.0	2	38.0	2	55.0	3	58.0	5	28.0	4	29.7	10	102.0	11	230.0	11	245.0
MAURITIUS																						
IBRD			1	8.0	2	20.0	2	20.0	1	10.0	2	20.0	1	7.0					8	67.3	6	58.0
IDA																			1	7.5		
TOTAL			1	8.0	2	20.0	2	20.0	1	10.0	2	20.0	1	7.0	3	12.7	9	74.8	6	58.0	8	78.0
RWANDA																						
IBRD																						
IDA	2	13.7	1	8.0	2	25.0	2	27.0	2	27.0	2	25.0			2	12.3	8	62.4	9	100.7	9	112.0
TOTAL	2	13.7	1	8.0	2	25.0	2	27.0	2	27.0	2	25.0			2	12.3	8	62.4	9	100.7	9	112.0

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

REGION IS EASTERN AFRICA		FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
		NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
COUNTRY																							
SOMALIA																							
IBRD																							
IDA		3	24.0	2	13.0	2	16.0	4	31.0	2	18.0	2	15.0	2	8.5	4	26.5	10	70.2	13	102.0	12	93.0
TOTAL		3	24.0	2	13.0	2	16.0	4	31.0	2	18.0	2	15.0	2	8.5	4	26.5	10	70.2	13	102.0	12	93.0
SUDAN																							
IBRD																							
IDA		3	65.0	4	70.0	4	70.0	3	55.0	4	105.0	4	100.0	2	55.0	1	5.0	2	32.0				
TOTAL		3	65.0	4	70.0	4	70.0	3	55.0	4	105.0	4	100.0	2	55.0	1	5.0	2	32.0				
SWAZILAND																							
IBRD		1	11.0	1	8.0	1	8.0	1	9.0	1	12.0	1	15.0	3	63.5	4	65.3	15	246.7	8	365.0	18	390.0
IDA																							
TOTAL		1	11.0	1	8.0	1	8.0	1	9.0	1	12.0	1	15.0	3	63.5	4	65.3	15	246.7	8	365.0	18	390.0
TANZANIA																							
IBRD		1	30.0	4	73.0	1	15.0	2	80.0	2	45.0	2	55.0	1	5.2	2	37.0	12	210.0	10	243.0	11	268.0
IDA		4	84.5	1	71.5	4	61.0	4	97.0	4	105.0	4	105.0	4	26.6	9	80.2	18	245.9	17	419.0	17	439.5
TOTAL		5	114.5	5	144.5	5	76.0	6	177.0	6	150.0	6	160.0	5	31.8	11	117.2	30	455.9	27	662.0	28	707.5
UGANDA																							
IBRD																							
IDA																							
TOTAL																							
ZAIRE																							
IBRD																							
IDA		3	56.0	4	76.0	3	43.0	3	76.0	3	66.0	4	75.0	3	18.4	4	25.9						
TOTAL		3	56.0	4	76.0	3	43.0	3	76.0	3	66.0	4	75.0	3	18.4	4	25.9						
ZAMBIA																							
IBRD		1	40.0	1	20.0	2	50.0	2	50.0	2	40.0	2	75.0										
IDA		2	11.0	1	16.0	1	10.0	1	15.0	1	20.0	1	20.0	1	21.3	10	161.2	9	295.4	8	200.0	9	235.0
TOTAL		3	51.0	2	36.0	3	60.0	3	65.0	3	60.0	3	95.0	1	21.3	10	161.2	9	295.4	8	200.0	9	235.0
REGION TOTALS																							
IBRD		9	295.0	11	178.0	14	304.0	13	349.0	14	359.0	16	415.0	12	188.9	31	536.1	69	1244.4	61	1485.0	68	1605.0
IDA		28	419.7	27	516.5	26	438.0	28	566.0	29	601.0	29	618.0	28	162.7	62	534.1	101	1393.6	138	2541.2	137	2698.5
TOTAL		37	714.7	38	694.5	40	742.0	41	915.0	43	960.0	45	1033.0	40	351.6	93	1070.2	170	2638.0	199	4026.2	205	4303.5

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION IS WESTERN AFRICA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84		
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	
BENIN, P.R.															4	26.0	5	41.8	4	55.0	5	68.0	
IBRD			1	11.0	1	16.0	1	14.0	1	14.0	1	13.0			4	26.0	5	41.8	4	55.0	5	68.0	
IDA			1	11.0	1	16.0	1	14.0	1	14.0	1	13.0											
TOTAL			1	11.0	1	16.0	1	14.0	1	14.0	1	13.0											
CENTRAL AFRICAN EMPIRE															3	12.4			3	32.0	3	26.5	
IBRD							1	15.0			1	10.0			3	12.4			3	32.0	3	26.5	
IDA	1	15.5	1	1.5			1	15.0			1	10.0											
TOTAL	1	15.5	1	1.5			1	15.0			1	10.0											
CAMEROON														1	7.0	5	31.8	12	169.0	13	366.0	14	366.0
IBRD	2	70.0	3	65.0	2	55.0	3	100.0	3	76.0	3	70.0	1	7.0	5	31.8	12	169.0	13	366.0	14	366.0	
IDA		10.0	1	35.0	2	40.0	1	20.0	2	33.0	1	25.0	1	11.6	4	31.7	8	126.2	6	138.0	7	153.0	
TOTAL	2	80.0	4	100.0	4	95.0	4	120.0	5	109.0	4	95.0	2	18.6	9	63.5	20	295.2	19	504.0	21	519.0	
CAPE VERDE																				1	6.0	1	6.0
IBRD							1	6.0												1	6.0	1	6.0
IDA							1	6.0															
TOTAL							1	6.0															
CHAD															4	10.3	8	60.6	9	100.0	7	91.0	
IBRD															4	10.3	8	60.6	9	100.0	7	91.0	
IDA	3	29.0	1	14.0	2	24.0	1	10.0	2	23.0	1	20.0											
TOTAL	3	29.0	1	14.0	2	24.0	1	10.0	2	23.0	1	20.0											
CONGO														1	30.0	5	15.5	2	46.0	2	30.0	4	50.0
IBRD														1	30.0	5	15.5	3	52.1	2	30.0	4	50.0
IDA														1	30.0	5	16.5						
TOTAL			1	15.0					1	15.0	2	20.0											
EQUATORIAL GUINEA																							
IBRD															1	2.0							
IDA															1	2.0							
TOTAL																							
GABON															2	13.8	2	15.5	1	5.0			
IBRD															2	13.8	2	15.5	1	5.0			
IDA																							
TOTAL																							
GAMBIA															2	3.4	5	19.0	2	16.0	2	16.0	
IBRD							1	11.0			1	5.0			2	3.4	5	19.0	2	16.0	2	16.0	
IDA	1	5.0					1	11.0			1	5.0											
TOTAL	1	5.0					1	11.0			1	5.0											
GHANA																							
IBRD			1	20.0	2	30.0	2	45.0	3	35.0	3	70.0			1	6.0	7	154.0	8	130.0	11	200.0	
IDA			3	55.0	1	25.0	1	30.0			2	30.0			6	37.5	4	58.0	7	168.0	7	167.0	
TOTAL	2	31.0	4	75.0	3	55.0	3	75.0	3	62.0	5	100.0			1	10.0	7	43.5	11	298.0	18	367.0	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

REGION	IS WESTERN AFRICA		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
GUINEA BISSAU																						
IBRD																	3	20.7	2	12.0		
IDA	1	8.7				1	7.0	1	5.0								3	20.7	2	12.0		
TOTAL	1	8.7				1	7.0	1	5.0													
GUINEA																						
IBRD					1	50.0						1	1.7	2	73.5			1	50.0	1	50.0	
IDA	3	21.6	2	21.4	2	20.0	2	17.0	2	20.0	2	25.0			2	21.0	11	100.0	9	92.4		
TOTAL	3	21.6	2	21.4	3	70.0	2	17.0	2	20.0	2	25.0	1	1.7	2	73.5	2	150.0	10	142.4		
IVORY COAST																						
IBRD	2	20.1	5	92.0	5	170.0	4	90.0	5	105.0	5	150.0	1	5.8	7	89.0	17	366.1	21	477.1	24	607.0
IDA													1	7.5								
TOTAL	2	20.1	5	92.0	5	170.0	4	90.0	5	105.0	5	150.0	1	5.8	8	96.5	17	366.1	21	477.1	24	607.0
LIBERIA																						
IBRD	1	10.7	2	25.0	2	20.0	1	10.0	3	40.0	1	15.0	2	4.3	5	19.7	10	84.3	9	105.7	9	110.0
IDA	2	14.0	1	7.0	1	7.0	1	8.0	1	10.0	1	10.0	2	11.0	2	19.0	4	29.0	3	25.0		
TOTAL	3	24.7	2	25.0	3	27.0	2	18.0	3	40.0	2	25.0	2	4.3	7	30.7	12	103.3	13	134.7	12	135.0
MALI																						
IBRD																						
IDA	2	9.0	4	54.0	3	35.0	3	34.0	2	25.0	3	36.0	1	9.1	6	39.4	7	95.7	14	157.0	14	179.0
TOTAL	2	9.0	4	54.0	3	35.0	3	34.0	2	25.0	3	36.0	1	9.1	6	39.4	7	95.7	14	157.0	14	179.0
MAURITANIA																						
IBRD	1	60.0																	1	60.0		
IDA	1	8.0	1	7.0															5	33.0	5	35.0
TOTAL	2	68.0	1	7.0															6	93.0	5	35.0
NIGER																						
IBRD	3	37.0	2	30.0	2	24.0	2	22.0	2	35.0	3	39.0	1	1.5	3	12.4	6	49.3	11	148.0	11	150.0
IDA	3	37.0	2	30.0	2	24.0	2	22.0	2	35.0	3	39.0	1	1.5	3	12.4	6	49.3	11	148.0	11	150.0
TOTAL	3	37.0	2	30.0	2	24.0	2	22.0	2	35.0	3	39.0	1	1.5	3	12.4	6	49.3	11	148.0	11	150.0
NIGERIA																						
IBRD	5	190.0	3	255.0	6	298.0	6	290.0	10	524.0	10	560.0	4	144.0	11	326.9	14	400.0	30	1557.0	35	1927.0
IDA													2	35.5								
TOTAL	5	190.0	3	255.0	6	298.0	6	290.0	10	524.0	10	560.0	6	179.5	11	326.9	14	400.0	30	1557.0	35	1927.0
SENEGAL																						
IBRD	1	7.1	1	25.0	2	30.0	3	35.0	2	30.0	3	35.0	1	4.0	4	19.2	9	67.0	9	127.1	11	155.0
IDA	2	23.5	1	17.0	2	23.0	1	15.0	3	40.0	1	10.0	1	9.0	8	47.1	8	64.8	9	118.5	8	105.0
TOTAL	3	30.6	2	42.0	4	53.0	4	50.0	5	70.0	4	45.0	2	13.0	12	66.3	17	131.8	18	245.6	19	260.0
SIERRA LEONE																						
IBRD													1	3.8	2	7.6	1	7.3				
IDA			2	25.8	1	12.0	3	23.0	2	14.0	2	17.0			2	10.8	2	20.5	8	74.8	10	91.8
TOTAL			2	25.8	1	12.0	3	23.0	2	14.0	2	17.0			4	18.4	3	27.8	8	74.8	10	91.8
SAO TOME E. PRINCIPE																						
IBRD																						
IDA					1	2.0			1	2.0									2	4.0	2	4.0
TOTAL					1	2.0			1	2.0									2	4.0	2	4.0

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION IS WESTERN AFRICA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
TOGO																						
IBRD							1	50.0									1	20.0	1	50.0	1	50.0
IDA	1	14.0			2	20.0	1	10.0	1	10.0	1	12.0		1	3.7	6	54.0	5	54.0	5	52.0	
TOTAL	1	14.0			2	20.0	2	60.0	1	10.0	1	12.0		1	3.7	7	74.0	6	104.0	6	102.0	
UPPER VOLTA																						
IBRD					2	30.0	2	35.0	3	32.0	2	20.0		6	19.4	8	78.3	1	167.0	12	172.8	
IDA	1	14.2	3	55.8	2	30.0	2	35.0	3	32.0	2	20.0		6	19.4	8	78.3	11	167.0	12	172.8	
TOTAL	1	14.2	3	55.8	2	30.0	2	35.0	3	32.0	2	20.0		6	19.4	8	78.3	11	167.0	12	172.8	
REGION TOTALS																						
IBRD	12	357.9	15	482.0	20	653.0	20	620.0	26	810.0	25	900.0	14	214.4	39	589.2	74	1318.7	93	2922.9	106	3465.0
IDA	23	240.5	23	342.5	22	278.0	25	290.0	24	300.0	25	302.0	8	83.4	60	298.3	78	738.9	117	1451.0	117	1496.5
TOTAL	35	598.4	38	824.5	42	931.0	45	910.0	50	1110.0	50	1202.0	22	297.8	99	887.5	152	2057.6	210	4373.9	223	4961.5

TABLE I - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION 15 EUROPE, MID EAST & N AFR FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
AFGHANISTAN																						
IBRD																						
IDA	4	69.5	3	75.5	3	59.0	4	70.0	4	77.0	4	77.0	1	3.5	6	28.5	9	126.5	18	351.0	18	358.5
TOTAL	4	69.5	3	75.5	3	59.0	4	70.0	4	77.0	4	77.0	1	3.5	6	28.5	9	126.5	18	351.0	18	358.5
ALGERIA																						
IBRD	4	165.0	4	219.0	4	212.0	4	255.0	5	279.0	5	340.0	1	20.5	2	24.5	13	698.0	1	1130.0	22	1305.0
IDA																						
TOTAL	4	165.0	4	219.0	4	212.0	4	255.0	5	279.0	5	340.0	1	20.5	2	24.5	13	698.0	21	1130.0	22	1305.0
BAHREIN																						
IBRD																						
IDA																						
TOTAL																						
CYPRUS																						
IBRD	1	11.0	2	12.0	1	8.0	1	8.0	1	9.0	1	9.0	1	2.8	7	39.3	5	48.5	6	48.0	6	46.0
IDA																						
TOTAL	1	11.0	2	12.0	1	8.0	1	8.0	1	9.0	1	9.0	1	2.8	7	39.3	5	48.5	6	48.0	6	46.0
EGYPT ARAB REPUBLIC OF																						
IBRD	3	177.0	4	227.0	6	335.0	5	210.0	4	275.0	3	350.0				15	674.5	22	1224.0	22	1397.0	
IDA	3	132.0	3	178.0	2	123.0	2	130.0	3	105.0	4	120.0			5	107.2	11	326.9	13	668.0	14	656.0
TOTAL	6	309.0	7	405.0	8	458.0	7	340.0	7	380.0	7	470.0			5	107.2	26	1001.4	35	1892.0	36	2053.0
JORDAN																						
IBRD	1	35.0	3	35.0	2	25.0	2	25.0	2	20.0	2	38.0							10	140.0	11	141.0
IDA													3	9.5	4	30.3	7	43.5				
TOTAL	1	35.0	3	35.0	2	25.0	2	25.0	2	20.0	2	38.0	3	9.5	4	30.3	7	43.5	10	140.0	11	141.0
GREECE																						
IBRD	1	20.0											1	12.5	5	107.3	10	346.0	1	20.0		
IDA																						
TOTAL	1	20.0											1	12.5	5	107.3	10	346.0	1	20.0		
IRAN																						
IBRD													7	141.0	15	558.0	7	317.5				
IDA																						
TOTAL													7	141.0	15	558.0	7	317.5				

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

REGION IS EUROPE, MID EAST & AFR	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84		
	COUNTRY	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
LEBANON																							
IBRD															2	39.6	1	50.0					
IDA																							
TOTAL															2	39.6	1	50.0					
MOROCCO																							
IBRD	5	286.0	5	214.0	5	260.0	5	265.0	5	275.0	5	390.0	3	45.0	10	239.3	18	585.0	25	1300.0	25	1404.0	
IDA													1	11.0	1	25.8	1	14.0					
TOTAL	5	286.0	5	214.0	5	260.0	5	265.0	5	275.0	5	390.0	4	56.0	11	265.1	19	599.0	25	1300.0	25	1404.0	
OMAN																							
IBRD					1	20.0	1	15.0	1	7.0	1	15.0	1	15.0			4	25.0	4	57.0	5	72.0	
IDA																							
TOTAL					1	20.0	1	15.0	1	7.0	1	15.0	1	15.0			4	25.0	4	57.0	5	72.0	
PORTUGAL																							
IBRD	3	123.0	3	122.0	4	180.0	3	160.0	3	150.0	4	150.0	5	57.5			6	241.0	16	735.0	17	762.0	
IDA																							
TOTAL	3	123.0	3	122.0	4	180.0	3	160.0	3	150.0	4	150.0	5	57.5			6	241.0	16	735.0	17	762.0	
ROMANIA																							
IBRD	5	295.0	4	265.0	5	280.0	5	280.0	5	280.0	5	280.0					17	882.8	24	1400.0	24	1385.0	
IDA																							
TOTAL	5	295.0	4	265.0	5	280.0	5	280.0	5	280.0	5	280.0					17	882.8	24	1400.0	24	1385.0	
SYRIA																							
IBRD	3	51.0	3	99.0	3	80.0	3	85.0	3	85.0	3	120.0					10	417.1	15	400.0	15	469.0	
IDA												1	8.5	2	28.8		10	10.0					
TOTAL	3	51.0	3	99.0	3	80.0	3	85.0	3	85.0	3	120.0	1	8.5	2	28.8	10	427.1	15	400.0	15	469.0	
TUNISIA																							
IBRD	3	89.5	5	93.5	4	105.0	4	115.0	4	110.0	4	150.0	4	34.0	12	129.3	15	316.5	20	513.0	21	573.5	
IDA													1	19.0	3	38.8		11.8					
TOTAL	3	89.5	5	93.5	4	105.0	4	115.0	4	110.0	4	150.0	5	53.0	15	168.1	15	328.3	20	513.0	21	573.5	
TURKEY																							
IBRD	5	347.5	6	360.5	7	447.0	7	485.0	7	460.0	8	500.0	1	10.0	16	450.0	15	971.5	32	2100.0	35	2252.5	
IDA													3	54.0	4	97.8							
TOTAL	5	347.5	6	360.5	7	447.0	7	485.0	7	460.0	8	500.0	4	64.0	20	547.8	15	971.5	32	2100.0	35	2252.5	
YEMEN ARAB REPUBLIC																							
IBRD																							
IDA	3	35.0	2	23.0	3	30.0	3	28.0	3	27.0	3	28.0			2	18.6	14	120.2	14	143.0	14	136.0	
TOTAL	3	35.0	2	23.0	3	30.0	3	28.0	3	27.0	3	28.0			2	18.6	14	120.2	14	143.0	14	136.0	
YEMEN, P.D.R.																							
IBRD																							
IDA	2	10.4	1	8.6	2	10.0	2	9.0	2	12.0	2	12.0			3	5.7	7	44.1	9	50.0	9	51.6	
TOTAL	2	10.4	1	8.6	2	10.0	2	9.0	2	12.0	2	12.0			3	5.7	7	44.1	9	50.0	9	51.6	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION 15		EUROPE, MID EAST & N AFR		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
YUGOSLAVIA																						
IBRD	5	302.0	4	259.0	5	339.0	5	360.0	5	390.0	5	390.0	5	175.5	12	419.9	25	1201.0	24	1650.0	23	1659.0
IDA																						
TOTAL	5	302.0	4	259.0	5	339.0	5	360.0	5	390.0	5	390.0	5	175.5	12	419.9	25	1201.0	24	1650.0	23	1659.0
REGION TOTALS																						
IBRD	39	1902.0	44	1926.0	47	2286.0	45	2255.0	45	2348.0	46	2730.0	28	498.8	81	2007.2	161	6774.4	220	10717.0	226	11466.0
IDA	12	246.9	9	285.1	10	222.0	11	237.0	12	221.0	13	237.0	10	105.5	30	381.5	49	697.0	54	1212.0	55	1202.1
TOTAL	51	2148.9	53	2211.1	57	2508.0	56	2492.0	57	2569.0	59	2967.0	38	604.3	111	2388.7	210	7471.4	274	11929.0	281	12668.1

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

REGION	LAT. AMER. & CARIBBEAN		FY 1981	FY 1982	FY 1983	FY 1984	TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84	
	FY 1979	FY 1980					NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
COUNTRY	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
ARGENTINA																
IBRD	2	306.0	3	175.0	3	230.0	3	320.0	2	200.0	3	400.0	2	70.3	5	318.5
IDA																
TOTAL	2	306.0	3	175.0	3	230.0	3	320.0	2	200.0	3	400.0	2	70.3	5	318.5
BAHAMAS																
IBRD			1	7.0					1	8.0					1	10.0
IDA															1	7.0
TOTAL			1	7.0					1	8.0					1	7.0
BARBADOS															2	17.0
IBRD	2	17.0														
IDA															2	17.0
TOTAL	2	17.0													2	17.0
BOLIVIA															9	301.0
IBRD	1	6.0	2	50.0	1	100.0	1	10.0	4	135.0	2	30.0	1	23.3	12	226.0
IDA	1	10.0	1	14.0	1	10.0		15.0		10.0		10.0	4	23.6	3	28.7
TOTAL	2	16.0	3	64.0	2	110.0	1	25.0	4	145.0	2	40.0	5	46.9	15	254.7
BRAZIL															51	4545.0
IBRD	10	765.0	11	915.0	10	920.0	9	835.0	11	1110.0	11	1120.0	10	291.1	23	1065.0
IDA															34	2296.5
TOTAL	10	765.0	11	915.0	10	920.0	9	835.0	11	1110.0	11	1120.0	10	291.1	23	1065.0
CENTRAL AMERICA REGION																
IBRD																
IDA																
TOTAL																
CHILE															8	435.0
IBRD	1	40.0	2	65.0	1	110.0	2	90.0	2	130.0	2	110.0	5	91.1	5	126.6
IDA															8	435.0
TOTAL	1	40.0	2	65.0	1	110.0	2	90.0	2	130.0	2	110.0	5	91.1	4	30.9
COLOMBIA															36	2194.3
IBRD	7	301.3	7	373.0	7	485.0	9	490.0	6	545.0	10	690.0	9	161.2	21	573.9
IDA															21	857.8
TOTAL	7	301.3	7	373.0	7	485.0	9	490.0	6	545.0	0	690.0	9	161.2	21	573.9
COSTA RICA															6	160.0
IBRD	1	30.0	1	20.0	1	15.0	1	45.0	2	50.0	2	55.0	2	25.0	8	74.8
IDA															7	163.6
TOTAL	1	30.0	1	20.0	1	15.0	1	45.0	2	50.0	2	55.0	2	25.0	8	74.8
CARIBBEAN																
IBRD			1	18.0			1	37.0			1	15.0			1	20.0
IDA				4.0			5.0				5.0				2	64.0
TOTAL			1	22.0			1	42.0			1	20.0			3	84.0
DOMINICAN REPUBLIC															8	202.0
IBRD	2	52.0	2	55.0	1	10.0	2	60.0	1	25.0	1	50.0			4	39.0
IDA														3	22.0	
TOTAL	2	52.0	2	55.0	1	10.0	2	60.0	1	25.0	1	50.0			4	39.0

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION 15 FY 1979		LAT. AMER. & CARIBBEAN FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84					
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT				
ECUADOR																										
IBRD	2	53.0	1	60.0	3	80.0	3	107.0	4	145.0	1	40.0	2	13.0	3	33.3	10	148.2	13	445.0	12	432.0				
IDA													1	13.1	3	18.3	1	5.5								
TOTAL	2	53.0	1	60.0	3	80.0	3	107.0	4	145.0	1	40.0	3	26.1	6	51.6	11	153.7	13	445.0	12	432.0				
EL SALVADOR																										
IBRD	1	25.0	1	15.0	3	100.0	1	60.0	2	60.0	1	30.0	2	12.3	3	41.7	6	97.2	8	260.0	8	265.0				
IDA															1	5.6	12.0									
TOTAL	1	25.0	1	15.0	3	100.0	1	60.0	2	60.0	1	30.0	2	12.3	4	47.3	6	109.2	8	260.0	8	265.0				
GRENADA																										
IBRD																										
IDA			1	3.0																	1	3.0	1	3.0		
TOTAL			1	3.0																	1	3.0	1	3.0		
GUATEMALA																										
IBRD			2	55.0	1	30.0	1	60.0	2	100.0	2	90.0	2	22.0	3	26.3	5	194.0	6	245.0	8	335.0				
IDA																										
TOTAL			2	55.0	1	30.0	1	60.0	2	100.0	2	90.0	2	22.0	3	26.3	5	194.0	6	245.0	8	335.0				
GUYANA																										
IBRD	2	15.0			1	17.0			2	27.0	1	20.0			4	19.3	2	20.9	5	59.0	4	64.0				
IDA		5.0													2	9.5	1	14.0	5	5.0	4	64.0				
TOTAL	2	20.0			1	17.0			2	27.0	1	20.0			6	28.8	3	34.9	5	64.0	4	64.0				
HAITI																										
IBRD	1	18.0	1	10.0	3	30.0	2	24.0	2	25.0	1	15.0					8	93.1	9	107.0	9	104.0				
IDA	1	18.0	1	10.0	3	30.0	2	24.0	2	25.0	1	15.0					8	93.1	9	107.0	9	104.0				
TOTAL	1	18.0	1	10.0	3	30.0	2	24.0	2	25.0	1	15.0					8	93.1	9	107.0	9	104.0				
HONDURAS																										
IBRD	3	65.0	1	75.0	2	35.0	2	25.0	2	50.0	2	50.0	4	26.9	4	42.6	5	98.5	10	250.0	9	235.0				
IDA				15.0				10.0		10.0				7.5	1	8.1	3	33.6		35.0		35.0				
TOTAL	3	65.0	1	90.0	2	35.0	2	35.0	2	60.0	2	50.0	4	34.4	5	50.7	8	132.1	10	285.0	9	270.0				
JAMAICA																										
IBRD	2	37.0	1	15.0	3	45.0	1	20.0	3	55.0	3	55.0	4	48.2	5	33.5	10	151.3	10	172.0	11	190.0				
IDA																										
TOTAL	2	37.0	1	15.0	3	45.0	1	20.0	3	55.0	3	55.0	4	48.2	5	33.5	10	151.3	10	172.0	11	190.0				
MEXICO																										
IBRD	5	425.0	7	630.0	6	525.0	6	650.0	7	850.0	7	850.0	8	368.5	11	763.8	22	1710.5	31	3080.0	32	3405.0				
IDA																										
TOTAL	5	425.0	7	630.0	6	525.0	6	650.0	7	850.0	7	850.0	8	368.5	11	763.8	22	1710.5	31	3080.0	32	3405.0				
NICARAGUA																										
IBRD							1	40.0	1	20.0	1	20.0	3	24.3	3	41.9	5	59.6	2	60.0	3	80.0				
IDA															1	20.0										
TOTAL							1	40.0	1	20.0	1	20.0	3	24.3	4	61.9	5	59.6	2	60.0	3	80.0				
PANAMA																										
IBRD	2	30.0	2	30.0	2	45.0	2	45.0	1	50.0	2	60.0			4	70.1	7	135.5	9	200.0	9	230.0				
IDA																										
TOTAL	2	30.0	2	30.0	2	45.0	2	45.0	1	50.0	2	60.0			4	70.1	7	135.5	9	200.0	9	230.0				

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION IS LAT. AMER. & CARIBBEAN FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84		
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	
PARAGUAY																							
IBRD	1	28.0	2	41.0	2	32.0	4	61.0	2	40.0	3	68.0	3	7.1	2	10.3	8	107.5	11	202.0	13	242.0	
IDA													2	11.1	1	9.4	2	19.0					
TOTAL	1	28.0	2	41.0	2	32.0	4	61.0	2	40.0	3	68.0	5	18.2	3	19.7	10	126.5	11	202.0	13	242.0	
PERU																							
IBRD	2	108.8			2	76.0	3	90.0	2	100.0	3	110.0	8	113.7	1	30.0	9	309.1	3	374.8	10	376.0	
IDA																							
TOTAL	2	108.8			2	76.0	3	90.0	2	100.0	3	110.0	8	113.7	1	30.0	9	309.1	3	374.8	10	376.0	
SURINAM																							
IBRD												1	8.0									1	8.0
IDA																						1	8.0
TOTAL												1	8.0										
TRINIDAD & TOBAGO																							
IBRD			1	20.0	1	10.0			1	20.0			2	13.6	6	37.7	3	30.0	3	50.0	2	30.0	
IDA																							
TOTAL			1	20.0	1	10.0			1	20.0			2	13.6	6	37.7	3	30.0	3	50.0	2	30.0	
URUGUAY																							
IBRD	2	45.0	2	58.0	1	40.0	3	58.0	1	30.0	1	50.0	1	12.7	4	39.5	4	75.2	9	231.0	8	236.0	
IDA																							
TOTAL	2	45.0	2	58.0	1	40.0	3	58.0	1	30.0	1	50.0	1	12.7	4	39.5	4	75.2	9	231.0	8	236.0	
VENEZUELA																							
IBRD																							
IDA																							
TOTAL																							
IBRD																							
IDA																							
TOTAL																							
REGION TOTALS																							
IBRD	48	2349.1	49	2670.0	52	2912.0	55	3103.0	58	3742.0	62	3939.0	73	1503.3	121	3415.4	187	7384.0	262	14776.1	274	16246.0	
IDA	2	33.0	3	45.0	4	40.0	2	54.0	2	45.0	1	30.0	8	48.7	16	116.5	18	205.9	13	218.0	12	215.0	
TOTAL	50	2382.1	52	2716.0	56	2952.0	57	3157.0	60	3787.0	63	3969.0	79	1552.0	137	3531.9	205	7589.9	275	14994.1	286	16461.0	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

COUNTRY	REGION IS EAST ASIA & PACIFIC FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-84		TOTAL 80-84		
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	
WESTERN SAMOA																							
IBRD			1	8.0					1	3.0							1	4.4	2	11.0	2	11.0	
IDA									1	3.0							1	4.4	2	11.0	2	11.0	
TOTAL			1	8.0					1	3.0													
REGION TOTALS																							
IBRD	31	1738.6	33	1836.0	35	2143.0	40	2394.0	39	2650.0	41	2925.0	33	543.1	59	1271.6	144	6072.8	178	10761.6	188	11948.0	
IDA	9	307.0	10	376.0	9	306.0	6	230.0	9	230.0	7	240.0	1	11.0	43	636.5	15	267.2	1	1443.0	41	1376.0	
TOTAL	40	2045.6	43	2212.0	44	2443.0	46	2624.0	48	2880.0	48	3165.0	34	554.1	102	1908.1	159	6340.0	179	12204.6	229	13324.0	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION COUNTRY AND FISCAL YEAR

REGION IS SOUTH ASIA		FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84		
COUNTRY	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT
BANGLADESH																								
IBRD														24.8		18.0								
IDA	8	220.2	8	287.0	9	240.0	8	230.0	9	240.0	9	250.0	9	99.7	10	136.9	23	672.2	42	1217.2	43	1247.0		
TOTAL	8	220.2	8	287.0	9	240.0	8	230.0	9	240.0	9	250.0	9	124.5	10	154.9	23	672.2	42	1217.2	43	1247.0		
BURMA																								
IBRD																								
IDA	4	87.5	3	108.0	3	70.0	4	75.0	4	80.0	4	90.0			2	33.0	8	131.0	18	420.5	18	423.0		
TOTAL	4	87.5	3	108.0	3	70.0	4	75.0	4	80.0	4	90.0			2	33.0	8	131.0	1	420.5	18	423.0		
INDIA																								
IBRD	1	250.0	2	350.0	3	420.0	4	460.0	4	470.0	4	500.0	5	189.0	5	210.5	14	1070.0	14	1950.0	17	2200.0		
IDA	13	1038.0	12	1314.0	13	1280.0	15	1320.0	15	1360.0	17	1440.0	8	591.0	33	1529.6	47	3137.6	68	6312.0	71	6634.0		
TOTAL	14	1288.0	14	1664.0	16	1700.0	19	1780.0	19	1830.0	21	1940.0	13	780.0	38	1740.1	61	4207.6	82	8262.0	88	8834.0		
MALDIVE ISLANDS																								
IBRD																								
IDA			1	3.0			1	5.0			1	5.0							2	8.0	3	13.0		
TOTAL			1	3.0			1	5.0			1	5.0							2	8.0	3	13.0		
NEPAL																								
IBRD																								
IDA	2	48.5	4	50.0	3	60.0	3	70.0	4	65.0	4	75.0			5	19.9	12	143.0	16	293.5	18	320.0		
TOTAL	2	48.5	4	50.0	3	60.0	3	70.0	4	65.0	4	75.0			5	19.9	12	143.0	16	293.5	18	320.0		
PAKISTAN																								
IBRD					1	50.0	1	50.0	1	50.0	1	50.0	7	137.2	7	155.7	8	295.0	3	150.0	4	200.0		
IDA	6	215.0	4	90.0	4	165.0	5	170.0	6	185.0	6	200.0	10	232.6	10	217.4	15	440.8	25	825.0	25	810.0		
TOTAL	6	215.0	4	90.0	5	215.0	6	220.0	7	235.0	7	250.0	17	369.8	17	373.1	23	735.8	28	975.0	29	1010.0		
SRI LANKA																								
IBRD														1	4.0	4	48.4							
IDA	2	36.0	4	106.0	3	45.0	3	60.0	4	70.0	4	80.0	1	2.0	2	27.9	10	120.2	16	317.0	18	361.0		
TOTAL	2	36.0	4	106.0	3	45.0	3	60.0	4	70.0	4	80.0	2	6.0	6	76.3	10	120.2	16	317.0	18	361.0		
REGION TOTALS																								
IBRD	1	250.0	2	350.0	4	470.0	5	510.0	5	520.0	5	550.0	13	355.0	16	432.6	22	1365.0	17	2100.0	21	2400.0		
IDA	35	1645.2	36	1958.0	35	1860.0	39	1930.0	42	2000.0	45	2140.0	28	925.3	62	1964.7	115	4644.8	187	9393.2	196	9808.0		
TOTAL	36	1895.2	38	2308.0	39	2330.0	44	2440.0	47	2520.0	50	2690.0	41	1280.3	78	2397.3	137	6009.8	204	11493.2	217	12208.0		

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION IS EASTERN AFRICA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
AGRIC & RURAL DEVT.																								
IBRD	1	72.0	2	13.0	2	55.0	3	60.0	3	105.0	3	95.0			7	35.2	15	182.2	11	305.0	13	328.0		
IDA	10	150.5	13	223.5	12	206.0	14	284.0	15	299.0	12	268.0	7	26.6	27	237.3	39	557.8	64	1163.0	66	1280.5		
TOTAL	11	222.5	15	236.5	14	261.0	17	344.0	18	404.0	15	363.0	7	26.6	34	272.5	54	740.0	75	1468.0	79	1608.5		
TELECOMMUNICATIONS																								
IBRD	1	20.0										2	17.8	3	47.4	1	32.0	1	20.0					
IDA															2	37.4	3	69.4						
TOTAL	1	20.0									2	17.8	3	47.4	3	69.4								
INDUST. DEVEL. & FINANCE																								
IBRD	1	3.0	2	38.0	4	72.0	1	25.0	1	30.0	4	89.0			1	8.0	12	124.0	9	168.0	12	254.0		
IDA	2	13.2	3	61.0	2	9.0	4	56.0	1	15.0	3	46.0			4	29.5	10	61.9	12	154.2	13	181.0		
TOTAL	3	16.2	5	99.0	6	81.0	5	81.0	2	45.0	7	129.0			5	37.5	22	185.9	21	322.2	25	435.0		
EDUCATION																								
IBRD			2	16.0	1	25.0	2	50.0	1	7.0	1	25.0	1	4.8	3	55.7	6	56.5	6	98.0	7	123.0		
IDA	2	30.0	3	55.0	4	51.0	3	65.0	3	41.0	3	55.0	6	43.6	9	61.3	14	167.6	15	242.0	15	257.0		
TOTAL	2	30.0	5	71.0	5	76.0	5	115.0	4	48.0	4	80.0	7	48.4	12	117.0	20	224.1	21	340.0	22	380.0		
NON-PROJECT																								
IBRD	1	40.0											1	30.0	3	90.0	1	40.0						
IDA													1	15.0										
TOTAL	1	40.0											1	30.0	4	105.0	1	40.0						
INDUSTRY																								
IBRD	1	30.0	1	20.0	1	25.0			1	50.0	2	80.0			1	32.0	5	168.5	4	125.0	5	175.0		
IDA			1	31.0											2	6.5	1	22.0	1	61.0				
TOTAL	1	30.0	2	51.0	1	25.0			1	50.0	2	80.0			3	38.5	6	190.5	5	186.0	5	175.0		
ENERGY																								
IBRD															1	20.0								
IDA															1	20.0								
TOTAL															1	20.0								
POPULATION																								
IBRD			1	30.0					1	25.0							1	12.0	2	55.0	2	55.0		
IDA									1	15.0	1	7.0					1	12.0	1	15.0	1	22.0		
TOTAL			1	30.0					1	40.0	1	7.0					1	12.0	2	70.0	3	77.0		
POWER																								
IBRD	1	9.0	1	26.0	1	13.0	1	40.0	2	55.0	2	63.0	5	66.3	4	116.1	7	287.1	6	143.0	7	197.0		
IDA			2	60.0					1	30.0					1	5.3	3	71.5	3	112.0	3	112.0		
TOTAL	1	9.0	3	86.0	1	13.0	1	62.0	3	85.0	2	63.0	5	66.3	5	121.4	10	358.6	9	255.0	10	309.0		
TOURISM																								
IBRD															1	17.0								
IDA	1	14.0													1	17.0			1	14.0				
TOTAL	1	14.0													1	17.0			1	14.0				

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION IS EASTERN AFRICA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
TRANSPORTATION																								
IBRD	2	101.0	1	30.0	3	70.0	4	155.0	2	27.0	2	35.0	4	100.0	9	192.6	10	122.6	12	383.0	12	317.0		
IDA	9	149.0	2	56.0	4	101.0	3	80.0	5	128.0	5	143.0	14	91.4	18	191.2	20	342.9	23	514.0	19	508.0		
TOTAL	11	250.0	3	86.0	7	171.0	7	235.0	7	155.0	7	178.0	18	191.4	27	383.8	30	465.5	35	697.0	31	825.0		
URBAN																								
IBRD					1	40.0			2	20.0	1	20.0					4	61.0	3	60.0	4	80.0		
IDA			1	19.0	2	35.0	1	12.0	1	25.0	2	60.0			3	56.5	5	91.0	5	91.0	7	151.0	7	151.0
TOTAL			1	19.0	3	75.0	1	12.0	3	45.0	3	80.0			7	117.5	8	151.0	8	151.0	11	231.0	11	231.0
WATER SUPPLY & SEWERAGE																								
IBRD	1	20.0	1	5.0	1	4.0	2	19.0	1	40.0	1	8.0			2	19.1	4	83.1	6	88.0	6	76.0		
IDA	2	25.5	1	6.0	2	36.0	3	47.0	3	48.0	3	45.0	1	1.1	1	3.0	3	34.5	11	162.5	12	182.0		
TOTAL	3	45.5	2	11.0	3	40.0	5	66.0	4	88.0	4	53.0	1	1.1	3	22.1	7	118.0	17	250.5	18	258.0		
TECHNICAL ASSISTANCE																								
IBRD																	4	14.5	3	12.5	1	5.0		
IDA	2	7.5	1	5.0													4	14.5	3	12.5	1	5.0		
TOTAL	2	7.5	1	5.0													4	14.5	3	12.5	1	5.0		
REGION TOTALS																								
IBRD	9	295.0	11	178.0	14	304.0	13	349.0	14	359.0	16	415.0	12	188.9	31	536.1	69	1244.4	61	1485.0	68	1605.0		
IDA	28	419.7	27	516.5	26	438.0	28	566.0	29	601.0	29	618.0	28	162.7	62	534.1	101	1393.6	138	2541.2	137	2698.5		
TOTAL	37	714.7	38	694.5	40	742.0	41	915.0	43	960.0	45	1033.0	40	351.6	93	1070.2	170	2638.0	199	4026.2	205	4303.5		

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION 15 WESTERN AFRICA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
AGRIC & RURAL DEVT.																								
IBRD	5	97.6	6	209.0	6	150.0	6	155.0	13	261.0	10	350.0	1	7.0	8	60.3	27	505.2	36	872.6	41	1125.0		
IDA	5	51.5	12	180.7	10	140.0	5	59.0	13	174.0	10	133.0	1	11.0	19	92.7	38	348.5	45	605.2	50	686.7		
TOTAL	10	149.1	18	389.7	16	290.0	11	214.0	26	435.0	20	483.0	1	18.0	27	153.0	65	853.7	81	1477.8	91	1811.7		
TELECOMMUNICATIONS																								
IBRD					1	10.0			1	10.0					1	6.3	2	48.0						
IDA					1	10.0			1	10.0					3	8.9	1	5.2	2	20.0	2	20.0		
TOTAL					1	10.0			1	10.0					4	15.2	3	53.2	2	20.0	2	20.0		
INDUST. DEVL. & FINANCE																								
IBRD	1	12.5	2	28.0	1	20.0	3	75.0	1	10.0	5	170.0			3	17.0	8	101.8	8	145.5	12	303.0		
IDA	2	36.0	3	23.8	1	15.0	2	20.0	4	40.0	1	10.0					4	15.0	12	134.8	10	103.8		
TOTAL	3	46.5	5	51.8	2	35.0	5	95.0	5	50.0	6	180.0			3	17.0	12	116.8	20	280.3	22	406.8		
EDUCATION																								
IBRD			1	25.0	1	10.0	2	50.0			1	40.0	1	1.8	3	82.3	6	47.5	4	85.0	5	125.0		
IDA	3	43.7	1	12.0	2	30.0	5	53.0	3	29.0	1	12.0	1	20.0	11	51.0	7	56.5	14	167.7	12	136.0		
TOTAL	3	43.7	2	37.0	3	40.0	7	103.0	3	29.0	2	52.0	2	21.8	14	133.3	13	104.0	18	252.7	17	261.0		
ENERGY																								
IBRD					1	35.0	2	95.0											3	130.0	3	130.0		
IDA	1	14.4								2	25.0							1	14.4	2	25.0			
TOTAL	1	14.4			1	35.0	2	95.0			2	25.0							4	144.4	5	155.0		
INDUSTRY																								
IBRD	1	60.0			2	150.0	2	85.0	1	85.0	2	50.0	1	30.0					2	60.6	6	380.0	7	370.0
IDA					1	2.0													1	2.0	1	2.0		
TOTAL	1	60.0			3	152.0	2	85.0	1	85.0	2	50.0	1	30.0					2	60.6	7	382.0	8	372.0
NON-PROJECT																								
IBRD																								
IDA																								
TOTAL																								
POPULATION																								
IBRD					1	8.0	1	10.0													2	18.0		
IDA					1	8.0	1	10.0													2	18.0		
TOTAL					1	8.0	1	10.0													2	18.0		
POWER																								
IBRD			2	125.0			1	75.0	2	170.0	1	30.0	3	115.8	6	112.5	5	62.7	5	370.0	6	400.0		
IDA	2	8.1			1	10.0	2	22.0			1	10.0	1	10.0	1	7.1	1	17.2	5	40.1	4	42.0		
TOTAL	2	8.1	2	125.0	1	10.0	3	97.0	2	170.0	2	40.0	4	125.8	7	119.6	6	79.9	10	410.1	10	442.0		
TOURISM																								
IBRD			1	15.0																	2	23.3		
IDA																				1	4.0			
TOTAL			1	15.0																3	27.3	1	15.0	

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

REGION IS	WESTERN AFRICA		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	FY 1979	FY 1980	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
TRANSPORTATION																						
IBRD	4	87.8	2	45.0	6	210.0	2	35.0	5	169.0	2	70.0	8	59.8	15	216.3	18	367.6	19	546.8	17	529.0
IDA	5	56.8	5	94.0	4	38.0	8	99.0	2	27.0	5	61.0	6	42.4	24	127.1	19	255.2	24	313.8	23	307.0
TOTAL	9	144.6	7	139.0	10	248.0	10	133.0	7	196.0	7	131.0	14	102.2	39	343.4	37	622.8	43	860.6	40	836.0
URBAN																						
IBRD					2	58.0			3	75.0	2	85.0					1	44.0		133.0	7	218.0
IDA			2	32.0	1	20.0	1	8.0		5.0	3	36.0			1	8.0	1	8.2	4	65.0	7	101.0
TOTAL			2	32.0	3	78.0	1	8.0	3	80.0	5	121.0			1	8.0	2	52.2	7	198.0	14	319.0
WATER SUPPLY & SEWERAGE																						
IBRD	1	100.0	1	35.0	1	20.0	2	50.0	1	40.0	2	105.0			2	14.5	3	58.0	6	245.0	7	250.0
IDA	4	25.5				5.0	1	20.0	1	15.0	2	15.0			1	3.5	1	10.4	6	65.5	4	55.0
TOTAL	5	125.5	1	35.0	1	25.0	3	70.0	2	55.0	4	120.0			3	18.0	4	68.4	12	310.5	11	305.0
TECHNICAL ASSISTANCE																						
IBRD																	5	18.7	1	4.5		
IDA																	5	18.7	1	4.5		
TOTAL	1	4.5															5	18.7	1	4.5		
REGION TOTALS																						
IBRD	12	357.9	15	482.0	20	653.0	20	620.0	26	810.0	25	900.0	14	214.4	39	589.2	74	1318.7	93	2922.9	106	3465.0
IDA	23	240.5	23	342.5	22	278.0	25	290.0	24	300.0	25	302.0	8	83.4	60	298.3	78	738.9	117	1451.0	117	1496.5
TOTAL	35	598.4	38	824.5	42	931.0	45	910.0	50	1110.0	50	1202.0	22	297.8	99	887.5	152	2057.6	210	4373.9	223	4961.5

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

REGION IS EUROPE, MID EAST & N AFR	FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
TRANSPORTATION																								
IBRD	3	232.0	7	352.0	3	152.0	8	385.0	7	289.0	5	334.0	8	231.0	16	348.0	25	1215.0	28	1410.0	29	1433.0		
IDA	1	16.5	1	68.6			1	10.0	2	30.0	1	6.0	1	8.5	8	83.0	6	56.7	5	125.1	5	114.6		
TOTAL	4	248.5	8	420.6	3	152.0	9	395.0	9	319.0	6	340.0	9	239.5	24	431.0	31	1271.7	33	1535.1	34	1547.6		
URBAN																								
IBRD			2	65.0	4	147.0	2	45.0			3	126.0					3	71.0	8	257.0	11	383.0		
IDA			1	40.0	1	40.0									1	2.3	1	21.0	1	80.0	1	80.0		
TOTAL			2	65.0	5	187.0	2	85.0			3	126.0			1	2.3	4	92.0	9	337.0	12	463.0		
WATER SUPPLY & SEWERAGE																								
IBRD	4	117.5	4	195.0	1	30.0	5	285.0	2	94.0	6	385.0			6	150.4	14	481.5	16	721.5	18	989.0		
IDA	1	16.5	1	12.0	1	5.0			2	57.0	3	46.0	1	3.5	3	34.2	7	50.6	5	90.5	7	120.0		
TOTAL	5	134.0	5	207.0	2	35.0	5	285.0	4	151.0	9	431.0	1	3.5	9	184.6	21	532.1	21	812.0	25	1109.0		
TECHNICAL ASSISTANCE																								
IBRD																	2	4.3						
IDA																								
TOTAL																	2	4.3						
REGION TOTALS																								
IBRD	39	1902.0	44	1926.0	47	2286.0	45	2255.0	45	2348.0	46	2730.0	28	498.8	81	2007.2	161	6774.4	220	10717.0	226	11466.0		
IDA	12	246.9	9	265.1	10	222.0	11	237.0	12	221.0	13	237.0	10	105.5	30	381.5	49	697.0	54	1212.0	55	1202.1		
TOTAL	51	2148.9	53	2211.1	57	2508.0	56	2492.0	57	2569.0	59	2967.0	38	604.3	111	2388.7	210	7471.4	274	11929.0	281	12668.1		

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

REGION IS FY 1979	LAT. AMER. & CARIBBEAN FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
AGRIC & RURAL DEVT.																						
IBRD	10	369.0	11	602.0	13	533.0	14	895.0	14	865.0	15	890.0	14	219.7	24	499.0	47	1958.9	62	3264.0	67	3785.0
IDA			1	7.0	1	15.0		5.0		10.0	1	25.0	3	13.1	8	46.8	7	73.6	2	37.0	3	62.0
TOTAL	10	369.0	12	609.0	14	548.0	14	900.0	14	875.0	16	915.0	17	232.8	32	545.8	54	2032.5	64	3301.0	70	3847.0
TELECOMMUNICATIONS																						
IBRD					2	60.0	1	40.0					4	73.7	6	99.5	7	176.1	3	100.0	3	100.0
IDA																						
TOTAL					2	60.0	1	40.0					4	73.7	6	99.5	7	176.1	3	100.0	3	100.0
INDUST. DEVEL. & FINANCE																						
IBRD	5	138.0	6	258.0	5	404.0	6	312.0	6	240.0	9	735.0	2	37.5	8	215.0	19	765.5	28	1352.0	32	1949.0
IDA				4.0	1	5.0		20.0									1	6.2	1	29.0	1	29.0
TOTAL	5	138.0	6	262.0	6	409.0	6	332.0	6	240.0	9	735.0	2	37.5	8	215.0	20	771.7	29	1381.0	33	1978.0
EDUCATION																						
IBRD	2	34.0	3	120.0	3	95.0	4	107.0	3	100.0	5	121.0	3	16.2	12	83.5	16	211.9	15	456.0	17	523.0
IDA													1	5.1	2	12.0	3	31.5	1	20.0	1	20.0
TOTAL	2	34.0	3	120.0	3	95.0	5	127.0	3	100.0	5	121.0	4	21.3	14	95.5	19	243.4	16	476.0	18	543.0
ENERGY																						
IBRD			3	110.0	2	140.0	1	55.0			1	70.0							6	305.0	7	375.0
IDA				7.0																7.0	7.0	
TOTAL			3	117.0	2	140.0	1	55.0			1	70.0							6	312.0	7	382.0
INDUSTRY																						
IBRD	4	240.0	3	225.0	4	365.0	1	100.0	4	415.0	4	280.0	2	27.0	5	267.0	11	724.0	18	1345.0	15	1285.0
IDA	1	10.0																	1	10.0		
TOTAL	5	250.0	3	225.0	4	365.0	1	100.0	4	415.0	4	280.0	2	27.0	5	267.0	11	724.0	17	1355.0	15	1285.0
NON-PROJECT																						
IBRD	3	135.0	1	40.0															1	60.0	2	56.5
IDA		5.0																	1	4.0	4	175.0
TOTAL	3	140.0	1	40.0															1	64.0	6	231.5
POPULATION																						
IBRD					1	10.0	1	20.0			3	73.0			2	5.0	4	55.8	2	30.0	5	103.0
IDA																						
TOTAL					1	10.0	1	20.0			3	73.0			2	5.0	4	55.8	2	30.0	5	103.0
POWER																						
IBRD	6	524.5	7	530.0	7	700.0	8	467.0	9	742.0	7	510.0	29	866.8	24	983.8	21	1269.7	37	2663.5	38	2949.0
IDA	1	18.0		15.0	1	10.0			1	15.0		5.0	2	19.0	3	25.3	2	22.0	3	58.0	2	45.0
TOTAL	7	542.5	7	545.0	8	710.0	8	467.0	10	757.0	7	515.0	31	885.8	27	1009.1	23	1291.7	40	3021.5	40	2994.0
TOURISM																						
IBRD	3	52.5																	1	22.0	3	113.0
IDA																						
TOTAL	3	52.5																	1	22.0	3	113.0

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION IS FY 1979		LAT. AMER. & CARIBBEAN FY 1980		F 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84				
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT			
TRANSPORTATION																									
IBRD	7	502.0	8	385.0	8	343.0	9	547.0	11	640.0	8	525.0	17	227.1	29	918.7	31	1462.1	43	2417.0	44	2440.0			
IDA			1	3.0	1	10.0			1	20.0				11.5	2	12.4	3	50.0	3	33.0	3	33.0			
TOTAL	7	502.0	9	388.0	9	353.0	9	547.0	12	660.0	8	525.0	17	238.6	31	931.1	34	1512.1	46	2450.0	47	2473.0			
URBAN																									
IBRD	3	178.3	4	160.0	4	77.0	5	340.0	3	235.0	5	480.0			1	5.4	9	208.6	9	990.3	21	1292.0			
IDA			1	10.0					1	20.0					1	20.0		12.0	1	10.0	1	10.0			
TOTAL	3	178.3	5	170.0	4	77.0	5	340.0	3	235.0	5	480.0			2	25.4	9	220.6	20	1000.3	22	1302.0			
WATER SUPPLY & SEWERAGE																									
IBRD	5	175.8	3	240.0	3	185.0	5	220.0	7	485.0	5	255.0	2	35.3	8	256.5	14	357.6	23	1305.8	23	1365.0			
IDA							1	9.0							1	6.6	1	9.0	1	9.0	1	9.0			
TOTAL	5	175.8	3	240.0	3	185.0	6	229.0	7	485.0	5	255.0	2	35.3	8	256.5	15	364.2	24	1314.8	24	1394.0			
TECHNICAL ASSISTANCE																									
IBRD									1	20.0							3	24.3	1	20.0	1	20.0			
IDA																		3	24.3	1	20.0	1	20.0		
TOTAL									1	20.0							3	24.3	1	20.0	1	20.0			
REGION TOTALS																									
IBRD	48	2349.1	49	2670.0	52	2912.0	55	3103.0	58	3742.0	62	3939.0	73	1503.3	121	3415.4	187	7384.0	262	14776.1	274	16246.0			
IDA	2	33.0	3	46.0	4	40.0	2	54.0	2	45.0	1	30.0	6	48.7	16	116.5	18	205.9	13	218.0	12	215.0			
TOTAL	50	2382.1	52	2716.0	56	2952.0	57	3157.0	60	3787.0	63	3969.0	79	1552.0	137	3531.9	205	7589.9	275	14994.1	286	16461.0			

TABLE IVA - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION IS EAST ASIA & PACIFIC FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84					
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT				
TRANSPORTATION																										
IBRD	4	381.7	3	115.0	5	250.0	5	480.0	3	152.0	4	370.0	5	117.5	16	400.4	19	1126.1	20	1378.7	20	1367.0				
IDA				10.0	2	80.0	2	60.0	1	30.0	2	40.0	1	11.0	6	116.7	2	23.4	5	180.0	7	220.0				
TOTAL	4	381.7	3	125.0	7	330.0	7	540.0	4	182.0	6	410.0	6	128.5					25	1558.7	27	1587.0				
URBAN							2	130.0	4	305.0	3	235.0			1	16.0	6	159.1	12	688.0	12	820.0				
IBRD	3	103.0	3	150.0																						
IDA							2	130.0	4	305.0	3	235.0			1	16.0	6	159.1	10	688.0	12	820.0				
TOTAL	3	103.0	3	150.0																						
WATER SUPPLY & SEWERAGE																										
IBRD	2	113.0	1	80.0	1	40.0	3	58.0	3	180.0	1	80.0	2	27.0	3	23.1	6	151.0	10	471.0	9	438.0				
IDA				32.0			1	50.0											2	82.0	2	82.0				
TOTAL	2	113.0	2	112.0	1	40.0	4	108.0	3	180.0	1	80.0	2	27.0	3	23.1	6	151.0	2	553.0	11	520.0				
TECHNICAL ASSISTANCE																										
IBRD																		3	10.0	1	10.0					
IDA	1	10.0																3	10.0	2	18.0	1	10.0			
TOTAL	1	10.0																				1	10.0			
REGION TOTALS																										
IBRD	31	1738.6	33	1836.0	35	2143.0	40	2394.0	39	2650.0	41	2925.0	33	543.1	59	1271.6	144	6072.8	178	10761.6	188	11948.0				
IDA	9	307.0	10	376.0	9	300.0	6	230.0	9	230.0	7	240.0	1	11.0	43	636.5	15	267.2	43	1443.0	41	1376.0				
TOTAL	40	2045.6	43	2212.0	44	2443.0	46	2624.0	48	2880.0	48	3165.0	34	554.1	102	1908.1	159	6340.0	221	12204.6	229	13324.0				

TABLE I/A - LENDING PROGRAM SUMMARY BY REGION SECTOR AND FISCAL YEAR

SECTOR	REGION 15 SOUTH ASIA FY 1979		FY 1980		FY 1981		FY 1982		FY 1983		FY 1984		TOTAL 64-68		TOTAL 69-73		TOTAL 74-78		TOTAL 79-83		TOTAL 80-84			
	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT	NO.	AMOUNT		
TRANSPORTATION														3	45.5	4	62.4	1	35.0					
IBRD														8	210.8	8	272.4	7	271.7	15	776.0	14	570.0	
IDA	2	206.0	3	175.0	3	145.0	4	150.0	4	100.0				11	256.3	12	334.8	8	306.7	15	776.0	14	570.0	
TOTAL	2	206.0	3	175.0	3	145.0	4	150.0	4	100.0														
URBAN																		1	25.0					
IBRD																		3	146.0		340.0	5	440.0	
IDA			1	60.0	1	100.0	1	80.0	1	100.0	1	100.0						4	171.0		340.0	5	440.0	
TOTAL			1	60.0	1	100.0	1	80.0	1	100.0	1	100.0												
WATER SUPPLY & SEWERAGE					1	50.0														1	50.0	1	50.0	
IBRD																								
IDA	4	283.5	3	182.0	2	130.0	3	180.0	3	145.0	6	290.0	3	51.8	1	55.0	5	95.6	15	920.5	16	847.0		
TOTAL	4	283.5	3	182.0	3	180.0	3	180.0	3	145.0	6	290.0	3	51.8	1	55.0	5	95.6	16	970.5	17	897.0		
TECHNICAL ASSISTANCE																								
IBRD									1	10.0							2	6.0	2	10.5	2	20.0	1	10.0
IDA	1	10.0							1	10.0							2	6.0	2	10.5	2	20.0	1	10.0
TOTAL	1	10.0																						
REGION TOTALS																								
IBRD	1	250.0	2	350.0	4	470.0	5	510.0	5	520.0	5	550.0	13	355.0	16	432.6	22	1365.0	17	2100.0	21	2400.0		
IDA	35	1645.2	36	1958.0	35	1860.0	39	1930.0	42	2000.0	45	2140.0	28	925.3	62	1964.7	115	4644.8	187	9393.2	196	9608.0		
TOTAL	36	1895.2	38	2308.0	39	2330.0	44	2440.0	47	2520.0	50	2690.0	41	1280.3	78	2397.3	137	6009.8	204	11493.2	217	12208.0		

OFFICE MEMORANDUM

TO: Agriculture and Rural Development Division Chiefs DATE: January 24, 1979
 FROM: Graham Donaldson, Chief, AGREP *GD*
 SUBJECT: Computerized Economic Analysis with CBDISPLAY

1. During the last year the Agriculture and Rural Development Department in collaboration with the Computing Activities Department has developed a computer package named CBDISPLAY for economic and sensitivity analysis in project appraisal. CBDISPLAY has been tested successfully and is now available for use by Bank staff. During February AGREP will conduct a series of short training courses to acquaint new users with the package.

Program Features

2. CBDISPLAY, an interactive package which complements farm budget analysis performed with the Agricultural Project Analysis System (APAS), allows users to:

- enter benefit and cost streams from a terminal;
- manipulate (multiply, lag, combine, etc.) their data as desired;
- perform economic and sensitivity analysis as prescribed in Central Projects Notes 2.01 and 2.02;
- preview the analysis visually on a terminal prior to its display on the CALCOMP plotter, for direct use in appraisal reports;
- accumulate instructions used during the analysis for future use without retyping (results in time-savings of 90% in re-runs).

Some particular advantages of CBDISPLAY are:

- a conversational command language (reduces training requirements to 30 minutes for untrained support staff);
- an automatic in-line editor (allows users to correct errors without losing input - permits use by staff without typing skills);
- automatic computation of standardized sensitivity analysis (up to 400 combinations of changes with one simple command);
- independent sensitivity tests for up to 1,300 cost and benefit streams (removes constraints on the number of streams per project component and allows easy aggregation of project streams);
- use of the computer as a desk calculator to perform arithmetic on columns of data, storage of the arithmetic and execution of iterative calculations to compute switching values (permits computation of switching values for streams that are not a constant proportion of incremental streams).

continued ...

Overall, the major advantage of CBDISPLAY is that it allows staff to concentrate on complex issues by allowing them to complete simple sensitivity tests quickly. As part of acceptance testing, CBDISPLAY has been used successfully in the appraisal of some 25 projects. Estimates of time saved reach as high as 75%.

Training

3. Separate training courses for secretaries, research assistants, and economists will begin in February and continue as long as interest warrants. Sessions will consist of one hour's classroom instruction followed by "hands-on" practice at a terminal. Staff who have participated in these sessions should be able to do economic and sensitivity analysis for a project immediately. However, consulting assistance will be supplied by AGREP should users encounter difficulties.

4. Chiefs of Agriculture and Rural Development Divisions are invited to send names of interested staff members in each category to Mr. Gordon Temple (D-863, ext. 75295). Additional copies of Introduction to CBDISPLAY may be obtained from Ms. Olive Hopkins (D-808, ext. 75295).

cc: Messrs. Yudelman, Pickering, Ray

Assistant Directors - Agriculture:

Messrs. J. Hendry, F. Van Gigch, J. Blaxall, A. Golan, R.E. Rowe,
D. Haynes, P. Goffin, L. Christoffersen

Distribution: Messrs. C. Walton D. Parsons
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 R. Wadsworth A. Otten
 K. Pranich

GTemple:oh

January 23, 1979

Mr. John F. Sokol
York University
McLaughlin College
4700 Keele Street
Downsview, Ontario M3J 1P3

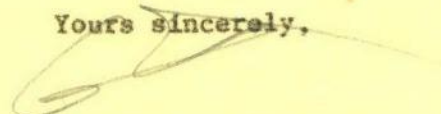
Dear Mr. Sokol:

Mr. Montague Yudelman has asked me to represent the World Bank on his behalf at your Forum on World Food Policy on March 24, 1979, which I will be very pleased to do.

I enclose a brief resume for your information or use in promotion of the meeting.

Regards,

Yours sincerely,



Graham Donaldson
Division Chief
Economics and Policy Division
Agriculture and Rural Development Dept.

Enclosure

GDonaldson:et

*S. Energy, Water and Telecomm
cc C. Agriculture Dept*

Mr. Charles Weiss, PAS

January 23, 1979

D. Hughart, EWT

Wind-Driven Water Pumps by Steve Blake

1. The cost computations in this report are thrown off by the treatment of capital charges. Recomputing costs per unit output on the basis of the data and assumptions used in the report but with a proper formula yields results that contradict Mr. Blake's conclusion that Aermotor windmills are better than the three appropriate technology (AT) designs considered. Inasmuch as the report is short informative, interesting, etc. and given our involvement in solar powered pumping, it seems worthwhile to try to straighten out the cost estimates.

2. The cost computations in the report are made by dividing lifetime energy or water output by lifetime cost. The only form of discounting included is an interest charge said to be based on a ten-year, ten-percent loan for the initial cost. If we accept the 10% rate, this procedure works for equipment with a ten-year life, but underestimates the capital charge for longer-life equipment. This produces the bias toward the Aermotor design. The figures are further distorted by arithmetic errors. The ratio of interest payments to initial cost shown for the Aermotor designs (0.76) corresponds to a twelve-year, ten-percent loan rather than a ten-year loan. A higher interest factor is used in costing the Polomo windmill (0.82) and lower ones for the Brace Savonius (0.71) and Arusha (0.70).

3. The attached table shows on lines 12-14 estimated costs per equivalent kwh^{1/} computed using the capital recovery factor appropriate for the assumed lifetime and a 10% continuous-compounding discount rate. The Arusha and Brace Savonius come out looking better than the Aermotor and Polomo designs. Two anomalies appear in the data, however:

- (a) Aermotor costs per kwh drop significantly with increases in diameter from 6' to 8' and from 10' to 12' but rise slightly with increases from 8' to 10' and from 12' to 14'.
- (b) Polomo SWM output rises 143% as windspeed goes from 12 mph to 15 mph while the power of the wind has gone up only 95% and the "coefficient of performance" apparently goes down (see page 16 of the report).

4. It may make more sense to assume a 5% real discount rate (e.g. interest rate of 12% and inflation rate of 7%). Recomputing costs on this basis (lines 19-21) reduces but does not eliminate the cost margin in favor of the AT designs. Reducing their assumed useful lines to five years (lines 24-26) at the 5% rate again reduces but does not reverse the cost advantages of the AT designs.

1/ Pumping energy plus 25% in line with Blake's assumption that an electric motor would be 80% efficient.

5. There may also be problems with the windmill-vs-gasoline engine comparisons. The gasoline engine costs work out to about \$1.3 per equivalent kwh with a 90-foot head and about \$8.1 per equivalent kwh with a 300-foot head.^{1/} Three questions about the computation that seem worth raising are:

- (a) Why is it that when the head is increased from 90' to 300' the energy per gallon pumped by windmill goes up about proportionately with the head while the gasoline engine specified in both examples manages to pump only 18% as much water in the high-head case as in the low-head case?
- (b) Is one-year a reasonable estimate of the life of the pumps specified in the two gasoline engine examples? (or) Might the cost of the gasoline powered alternative be brought down by using a more durable pump?
- (c) What would be a reasonable estimate of installation costs for the gasoline powered systems?

Attachment

DH Hughart:rm

cc: Messrs. Armar, PAS
Fallen-Bailey, EWT
Notes, AGR
Middleton, EWT

^{1/} Using Blake's assumption that an electric pump system would have an 80% efficiency and converting from gallons pumped to kwh using Blake's figures for windmills in 15 mph winds.

Re-Computation of Windmill Costs

Line	6' diam. Aermotor	8' diam. Aermotor	10' diam. Aermotor	12' diam. Aermotor	14' diam. Aermotor	Polomo SWM	Bruce S-Rotor	Arusha Mill
1 Equipment cost	1630	1855	2580	3950	5570	350	140	2120
2 Installation	600	600	700	800	900	50	50	900
3 Total first cost	<u>2230</u>	<u>2455</u>	<u>3280</u>	<u>4750</u>	<u>6470</u>	<u>400</u>	<u>190</u>	<u>3020</u>
4 (life in years)	(30)	(30)	(30)	(30)	(30)	(10)	(10)	(10)
5 (annual charge rate at 10%)	(.1052)	(.1052)	(.1052)	(.1052)	(.1052)	(.1582)	(.1582)	(.1582)
6 Annual capital Charge	235	258	345	500	681	63	30	478
7 Annual O&M	22	25	33	48	65	7	3	42
8 Total	<u>257</u>	<u>283</u>	<u>378</u>	<u>548</u>	<u>746</u>	<u>70</u>	<u>33</u>	<u>520</u>
Equiv. kwh/yr produced								
9 @ 10 mph	262	556	712	1312	1719	138	114	-
10 @ 12 mph	338	722	835	1712	2200	181	171	3718
11 @ 15 mph	925	898	1150	2081	2750	441	206	-
Cost per equiv. kwh								
12 @ 10 mph	0.98	0.51	0.53	0.42	0.43	0.51	0.29	-
13 @ 12 mph	0.76	0.39	0.45	0.32	0.34	0.39	0.19	0.14
14 @ 15 mph	0.60	0.32	0.33	0.26	0.27	0.16	0.16	-
15 (annual charge rate at 5%)	(.0644)			(.0644)		(.1271)	(.1271)	(.1271)
16 Annual capital charge	144			306		51	24	384
17 Annual O&M	22			48		7	3	42
18 Total	<u>166</u>			<u>354</u>		<u>58</u>	<u>27</u>	<u>426</u>
Cost per equiv. kwh								
19 @ 10 mph	0.63			0.27		0.42	0.24	-
20 @ 12 mph	0.49			0.21		0.32	0.16	0.11
21 @ 15 mph	0.39			0.17		0.13	0.13	-
22 (Annual charge at 5% with 5-year life)						(.2260)	(.2260)	(.2260)
23 Total annual cost						97	46	725
Cost per equiv. kwh								
24 @ 10 mph						0.71	0.40	-
25 @ 12 mph						0.54	0.27	0.19
26 @ 15 mph						0.22	0.22	-

S-AGW cublma

January 23, 1979

Dr. J. M. Jewsbury
Department of Parasitology
Liverpool School of Tropical Medicine
University of Liverpool
Pembroke Place
Liverpool L3 5QA
England

Dear Dr. Jewsbury:

Thank you very much for the enclosure to your letter of January 19, 1979, and the invitation to attend a round-table discussion in April. I am circulating copies to several persons within the Bank, who are interested in schistosomiasis, to ascertain if operational requirements will permit someone from the Bank to attend. If there is a positive response, either they or I will respond.

With appreciation for your courtesy, I am

Very truly yours,

Frederick L. Hotes
Irrigation Adviser
Agriculture and Rural
Development Department

FLHotes:rm

OFFICIAL FILE COPY

OFFICE MEMORANDUM

F338

✓ S. Agriculture
a.s. - Energy, water & Tele
com

TO: Files

DATE: January 22, 1979

FROM: A. A. Meimaris (WAP)

SUBJECT: Meeting with CEFIGRE Training Director

On January 19, 1979, I met with Mr. P-F. Tenière-Buchot, the Training Director of the Centre de Formation Internationale à la Gestion des Ressources en Eau (CEFIGRE) - the International Training Center for Water Resources Management (ITCWRM). Mr. Tenière-Buchot briefly summarized the history of this relatively new institution and discussed its research and training activities.

CEFIGRE was created jointly by the French Government and the United Nations Environment Program (UNEP) on September 21, 1976 in response to the growing international need for training and research in water resources management. CEFIGRE's headquarters are located at Valbonne-Sophia Antipolis, near Nice. It is directed by a Board of Directors and a Scientific Committee. The latter, which determines the training program of CEFIGRE, is composed of 30 members, one-third of whom are selected from various international organizations, including the Bank. (Mr. Rovani is the Bank's member on the Scientific Committee, and Messrs. Kalbermatten and Hotes are alternates.) The other two-thirds of the Scientific Committee include both French and international experts in the field of water resources management (list attached).

Mr. Tenière-Buchot left various brochures (mostly in French, the official language of CEFIGRE) explaining the objectives, procedures, statutes and program of CEFIGRE and promised to keep us informed of subsequent developments. He mentioned the international seminar of experts dealing with agricultural and livestock water policy in arid and semi-arid countries, to be held in Niamey February 12-17, 1979, in cooperation with the Comité Interafricain d'Etudes Hydrauliques. He also mentioned that CEFIGRE would be working in close cooperation with EDI and planned to adapt into French several of EDI's English courses in water management. According to the documentation left with us, the training provided by CEFIGRE can be either regional or national in scope, and can also be held outside of France.

I mentioned to Mr. Tenière-Buchot that OMVS officials had recently requested training in water management for their irrigation project managers. I emphasized that the Bank cannot accept a priori a specific institution without first investigating alternative training programs of various institutions, and requested that CEFIGRE provide us with a detailed program for such training, including costs, content, selection requirements, etc. Mr. Tenière-Buchot seemed interested in the project and indicated that CEFIGRE would provide us with the information requested.

A Meimaris/JMasterson:jm

cc.: Messrs. Rovani (EWT), van Gigch (WAP), Kalbermatten (EWT), Hotes (AGR),
Tillier (WAP), Ginnsz (WAP), Brown (Dakar)
Mrs. Abel (IRD)

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M. Jean-Paul PFISTER
Administrateur Civil
Secrétaire Général du CEFIGRE
06560 VALBONNE

S - Agriculturne

Members of the Sociological Group

January 22, 1979

Michael Cernea (AGR)

Sociological Variables in Monitoring & Evaluation Meeting, January 24, 1979

This is to inform you that our group meeting on the Sociological Variables in Monitoring and Evaluation Systems (January 24, 12:30 p.m., Room D-958) will be attended by Mr. Richard Dosik, Implementation Policy Adviser (PAS), who is the chairman of the currently working Bank Task Force on Monitoring and Evaluation. He is interested in listening to our views about how socio-cultural variables of project implementation should be taken into account in the design of M & E systems.

MCernea/dc

cc: Anna Sant'Anna, N. Colletta, Gloria Davis, M. Elmendorf, S. Fukuda-Parr, R. Goodland, P. Hammond, S. Heyneman, F. Lethem, Heli Perrett, R. Noronha, M. Mason, J. Maas, J. de Regt, Gloria Scott, J. Kearns, M. Baxter, L. Gram, S. Parris, M. Koch-Weser, R. Dosik, A. Fonaroff

Members of the Sociological Group

January 19, 1979

Michael Cernea (AGR)

Group Meeting on Sociological Variables in Monitoring and Evaluation

1. As previously announced, our January group meeting will be devoted to project specific monitoring, more specifically to defining the specific sociological variables which we believe should be looked at in project monitoring. You probably know that Bank management has recently set up a Bank-wide Task Force on monitoring and evaluation to assess "the state of the art" regarding the incorporation of M&E systems in various projects and to recommend what should be done in order to strengthen Bank capabilities in this field.

2. For our group meeting, I will introduce the topic and present the sociological aspects and experience with M & E in the agricultural sector to date, for your discussion and suggestions. We may explore how anthropology and sociology could have a substantive contribution in monitoring and evaluation efforts and the outcome of our discussion can be subsequently presented to the Bank's Task Force for consideration.

3. Thus, the schedule for our January 24, 1979 meeting in Room D 958 at 12:30 p.m. is:

(a) Sociological variables in project specific monitoring (Michael Cernea)

(b) Information on current concerns of group members (topic suggested by Gloria Scott)

4. For point "b", it might be of mutual interest to listen to brief presentations from group members on their current activities, which could facilitate further intercommunications.

MCernea/dc

cc: Anna Sant'Anna, N. Colletta, Gloria Davis, M. Elmendorf, S. Fukuda-Parr, R. Goodland, P. Hammond, S. Heyneman, F. Lethem, Heli Perrett, R. Neronha, M. Mason, J. Maas, J. de Regt, Gloria Scott, J. Kearns, M. Baxter, L. Gram, S. Parris, M. Koch-Weser, R. Dosik. A. Fonaroff

Mr. Montague Yudelman, Director, AGR

January 18, 1979

P.L. Scandizzo, AGREP

Is the ARD Research in the Bank Unpublishable?
Re the Recent Letter of W. Falcon

1. The alleged "non-publishability" of the Bank research is denied by the evidence. Research projects and indeed many other Bank reports that did not originate as research have some published output. Because of the size of the Bank staff, however, the need to generate intermediate output and bureaucratic requirements, the unpublished output is also very large. However, one should not be misled to think, that because unpublished output is large, the publishable part of Bank sponsored research results is small.

2. For Agriculture and Rural Development, in particular, we can take the pages published in the AJAE as a measure of publishing performance. During the period 1974-78, the ARD group/1 in the Bank produced about 100 pages of published material, for an average of 10.67 non-invited pages per researcher. If we compare this performance with the ones of the leading departments of agricultural economics (see attached table from Opaluch and Just) in the period 1968-72, we should conclude that the Bank has been more successful than most academic institutions in keeping its research publishable.

~~PLS:itw~~
Attachment

cc: Graham Donaldson

PLS:itw

1/ Donaldson, Duloy, Egbert, Fedor, Hazell, Lutz, Norton, Scandizzo, Singh

Reference: James Opaluch and Richard E. Just, Institutional Affiliation of Authors of Contributions in Agricultural Economics, AJAE, Vol. 59, No. 2, May 1977.

Table 2. University Affiliation of Authors Contributing Noninvited Papers to the *Journal*, 1968-72

University	Total Pages	Rank	Pages per Member	Rank
Purdue	162.75	1	1.64	5
Wisconsin	136.50	2	2.07	2
Illinois	136.00	3	1.66	4
California-Davis	127.00	4	2.76	1
Iowa State	116.00	5	1.43	11
Missouri	107.00	6	1.41	13
Cornell	98.25	7	1.42	12
Pennsylvania State	91.50	8	2.03	3
North Carolina State	88.75	9	1.64	6
Michigan State	83.75	10	0.73	19
Oklahoma State	80.50	11	1.52	8
Oregon State	68.25	12	1.45	9
California-Berkeley	60.50	13	1.44	10
Ohio State	47.25	14	0.72	20
Texas A&M	46.50	15	0.99	14
Washington State	39.50	16	0.79	19
Arizona	39.25	17	0.93	16
Minnesota	38.75	18	0.47	21
Tennessee	34.55	19	0.80	17
Connecticut	32.50	20	1.63	7
Maryland	32.50	20	0.98	15

OFFICE MEMORANDUM

*non-Regional
File
S. Aquilino*

TO: Distribution List Below

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

SUBJECT: Land Clearing Costs

DATE: January 18, 1979

Jan 9, 79 filed separately

1. Please refer to the attached letter from Mr. Gordon Hawkins and draft graph on subject matter. Mr. Hawkins is an active contributor to the work of the International Commission on Irrigation and Drainage, a non-profit group with headquarters in New Delhi. He was in the Bank early this week and explained that he has experienced great difficulty in getting any reliable data on land clearing costs, and that it would be greatly appreciated if any Bank experience in that regard could be relayed to him.
2. Since this is a topic frequently addressed by preparation, appraisal and supervision missions, it would seem that current generalized guidelines could be helpful to the Bank and many others engaged in development work, and that any contributions we could make, informally, would be worthwhile. Comments from you or any of your colleagues would be appreciated.
3. Perhaps plotting some known data on a copy of the attached graph would be helpful, with a short identification note, such as "Chana-1973" or "Indonesia-1977." We volunteer to prepare a consolidated response to Mr. Hansen and to distribute the results within the Bank. Responses by February 28, 1979, would be appreciated and should be sent to Mr. G. F. Darnell (AGRDR/CPS).

FLHotes:rm

Distribution List: All Agriculture Assistant Directors and Division Chiefs; Messrs. Yudelman, Darnell, Gray, Collins, Sutherland (AGR/CPS).

January 18, 1979

Mr. J.E.M. Arnold
Chief, Planning and Investment Studies Unit
Forestry Department
Food and Agriculture Organization
of the United Nations
Via delle Terme di Caracalla
00100 ROME, ITALY

Dear Mike:

I'm sorry for the delay in replying to your letter of December 11 - mission travel and holidays have intervened.

Herewith copies of the papers on wood stoves collated by VITA and Energy and Development prepared by Mr. Jyoti Parikh; another paper by Messrs. Dunkerley, Ramsay, Cecelski and Mbi of Resources for the Future entitled "Household Energy Use and Supply by the Urban and Rural Poor in Developing Countries" is being reproduced and I will send you a copy when it becomes available. I am also enclosing a draft of a paper being prepared by David Hughart of our Energy Department. Mr. Hughart (Energy, Water and Telecommunications Department, Room D.1040) has an in-depth knowledge of the energy problems and when you are next in Washington, you may be able to exchange views with him. Meantime, he would appreciate any comments you have on the draft paper.

Thank you for your seasonal greetings. I hope all is well with you.

Best wishes,

Yours sincerely,

Sydney A. Draper,
Rural Development Division.

P.S. We could usefully use a set of the Small-Scale Forest Industries papers which Dr. Swiderski has produced. Is it possible you could request publications to send us a set?

Enclosures.

c.c. Messrs. John Spears (AGR), D. Hughart (EWT)

SADraper:jh

Mr. Ted J. Davis (AGR)

January 18, 1979

Guido Deboeck (AGR)

How the Indians Manage: Follow-up

1. As requested, I established contact with Mr. Morishima who is involved in the development of a management information system, using a mini-computer, for the Quinault Indian Reservation (see my memorandum of January 5, 1979).
2. Mr. Morishima, and Mr. W. Shale (Director of the Department of National Resources of the Quinault Indian Nation) are currently in Washington and came to see us on January 17.
3. I explained to them why their experience has drawn our attention and why it would be useful to document their experience in order to explore some alternative solutions to the data processing problems currently experienced in many M & E systems for rural development projects.
4. Messrs. Morishima and Shale said that they would welcome a side-visit from a RORSU member, and would give us all their assistance in documenting their experience. They asked that we give them advance notice, such that they would be able to set up a schedule of meetings both with the developers and users of their management information system.
5. In order to save travel costs, I suggest that a potential side-visit to Taholah (Washington State) be planned in coordination with the preparation of our workshop on M & E for East Asia.

GDeboeck/dc